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ISAAC ASIMOV'S

JUNE 1986
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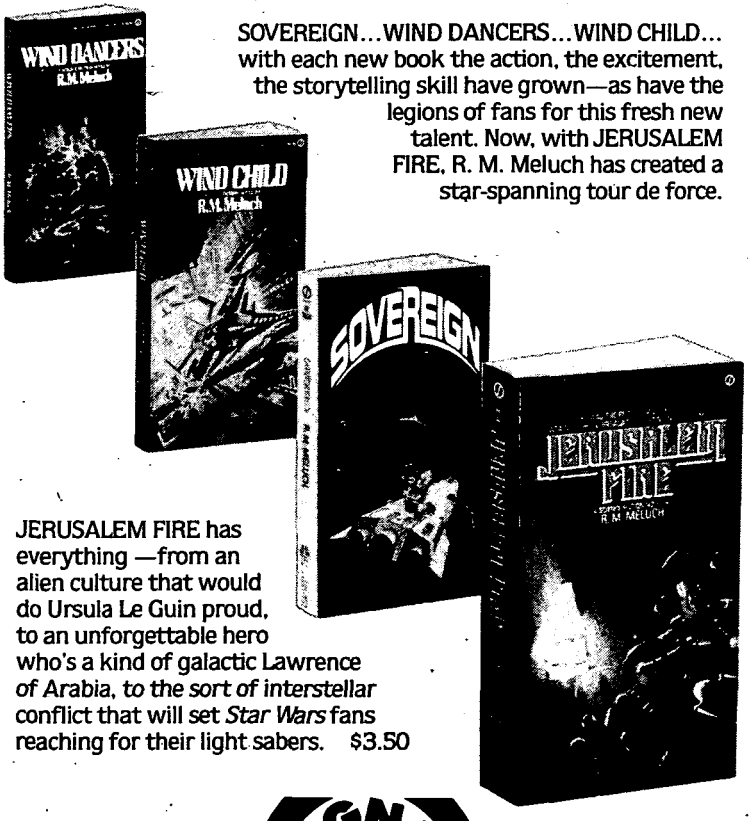

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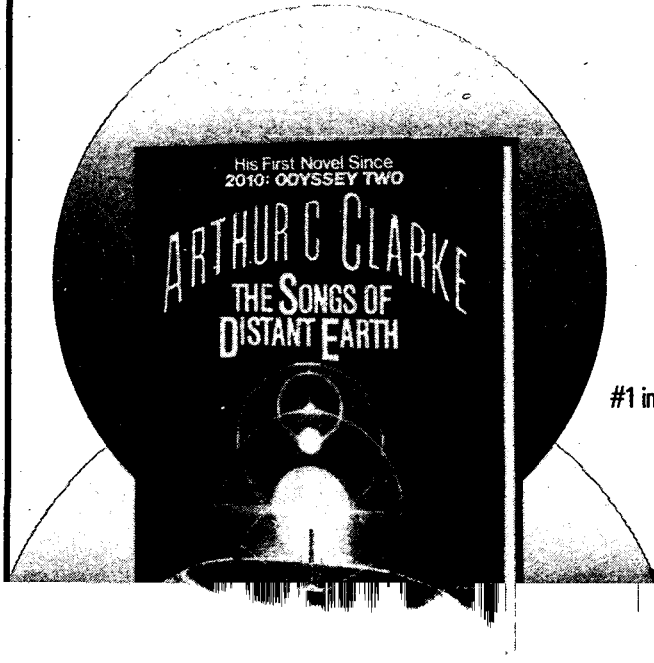

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June 1986
Next issue on sale
June 3, 1986

Novelettes

62 The Beautiful and the Sublime ___ Bruce Sterling
118 A Place to Stay for a Little While ___ Jim Aikin
148 The Prisoner of Chillon ___ James Patrick Kelly

Short Stories

60 The Making of Dragons ___ Jane Yolen
88 Galileo Complains ___ Carter Scholz
92 Prosthesis ___ Melanie Tem and Steve Rasnic Tem
106 Alien Graffiti (A Personal History of Vagrant Intrusions) ___ Michael Bishop
144 Body Man ___ Avram Davidson

Departments

4 Editorial: Wish-Fulfillment ___ Isaac Asimov
9 Letters
18 Puzzle Flags on Mars ___ Martin Gardner
22 Gaming ___ Matthew J. Costello
24 Viewpoint: Robotics and Common Sense ___ Philip E. Agre
184 On Books ___ Baird Searles
192 The SF Conventional Calendar ___ Erwin S. Strauss

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EDITORIAL

WISH-FULFILLMENT

by Isaac Asimov

It seems to me that most fantasy is born of wish-fulfillment, and that should be a strong component in its perennial popularity.

After all, the universe is *not* what we want it to be and from childhood on we desperately wish that were not so.

Wouldn't it be wonderful if you were so good-looking that members of the opposite sex would swoon with desire for you? Wouldn't it be great if you were so strong or so skillful at the martial arts that no one would dare cross you, especially that rotten bully down the street? Wouldn't it be marvelous if you could fly by just flapping your hands slightly, or could be invisible if you wanted to be, or could have anything you want just by snapping your fingers? Go ahead, make up your own list.

It's not only fantasy that feeds your desires. Modern advertisement offers you wish-fulfillment in huge quantities and makes millions as a result. Let a woman but use a particular brand of toothpaste and that handsome fellow, who had earlier been indifferent, becomes instantly enamored. Just place a drop of this ointment on your skin and eternal youth is yours. Just wear a certain brand of jeans and unlimited sex will come your way. In short, even popular songs will tell you that wishing will make it so.

You might think that all this is just food for the childish in us, but there are people who find support for wish-fulfillment in science, too. "What man can imagine," they intone, solemnly, "man can do." And the history of technology offers us many examples.

It has been a millennia-long dream of humanity to fly, and look here—we can fly. We can fly faster and longer than birds. We have built contraptions that can carry hundreds of people through the stratosphere at supersonic speeds. How's that for wish-fulfillment?

And we have television, and electric lighting at the touch of a button, and elevators to take us to the top of a tall building, and automobiles that are faster and more convenient than any set of seven-league boots, and anesthetics that do away with pain, and magic potions called antibiotics that cure disease, and so on, and so on, and so on. Ask any primitive story-

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teller to imagine a wish and it is very likely we can point to something in modern technology that would correspond.

Just the same, while science is important as a device that can guide the way to astonishing things made possible, it is even more important as a way of setting *limits*. It marks the impossible.

Sure you can fly by taking advantage of the laws of aerodynamics and by expending sufficient energy, but that's not the way *I* want to fly. *I* want to fly by having my body lift into the air, and move this way and that, quickly or slowly, *without any expenditure of energy on my part*. I want effortless flying without machinery. I can imagine that without any trouble, but I can't do it, and I suspect it will be forever impossible for anyone to do it. The implacability of the law of conservation of energy and the unlikelihood of being able to monkey with the gravitational interaction stands in the way.

What started me thinking in this direction was the premiere of the new "Twilight Zone" series on television. It opened with two half-hour dramas. The first was a dramatic version of Harlan Ellison's "Shatterday." (I once heard Harlan read the story to an assembled audience. He is an absolutely terrific reader, and I sometimes wonder why he never thought of trying to break into the movies as a character actor.)

The second, however, is what I want to talk about. It was called

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"A Little Peace and Quiet" and dealt with a nice woman who had four totally impossible and noisy children, a thick-headed noisy husband, and a noisy dog. Unfortunately, she found it impossible to impose any sort of order on them. My own idea as I watched was a simple and direct one. Kill them all.

However, our heroine found a locket in a box in her backyard. She put it on and then, when driven to distraction by her horrible family, she screamed, "Shut up. Just shut up." And they were all quiet. In fact, they were more than quiet, they all froze. Everything froze, and it became quite apparent that the woman's locket was a device that, at will, could stop time.

Nor was it a local phenomenon, for as the drama proceeded, and she had other opportunitites to make use of her new ability, it became perfectly clear that it stopped time for the whole Earth and, very likely, for the whole Universe.

What's more she could start it again any time by saying "Start talking."

That amounted to several wish-fulfillments at once. She was, of course, invisible to anyone else while time was stopped. She could do anything she wanted, such as lifting something out of another woman's shopping cart, or taking sexual liberties with a very handsome young man who was frozen and helpless. (She didn't, but it was made perfectly clear that she had the impulse to.)

As fantasy, it was fascinating. As science, alas, it was impossible.

Let's say you could stop time. Is there any way of doing that? Certainly. Travel at the speed of light and the rate of progress in time is zero—but only for you, not for the rest of the Universe.

The question is, how do you stop time for the rest of the Universe and not for you.

Well, suppose you could travel at infinite speed. In that case you could dash from point A to point B to point C, doing anything you wanted to do, and it would all happen in zero time. The rest of the world would seem to you to be frozen.

But how can you travel at infinite speed? The speed of light is the ultimate limit, and after you have traveled back and forth for 186,000 miles or so, one second will have passed in the Universe generally. In other words, people wouldn't be frozen, they would simply be moving very, very slowly. (The importance between zero time flow and very slow time flow is crucial in connection with the denouement, but naturally I won't tell you what that was.)

You might suppose that very slow movement under ordinary circumstances would do. Ordinarily, the heroine would accomplish whatever she wanted after moving about for a total of far less than 186,000 miles, or even, perhaps, for less than 1 mile. But, to move at the speed of light, or near it, would require enormous mountains of en-

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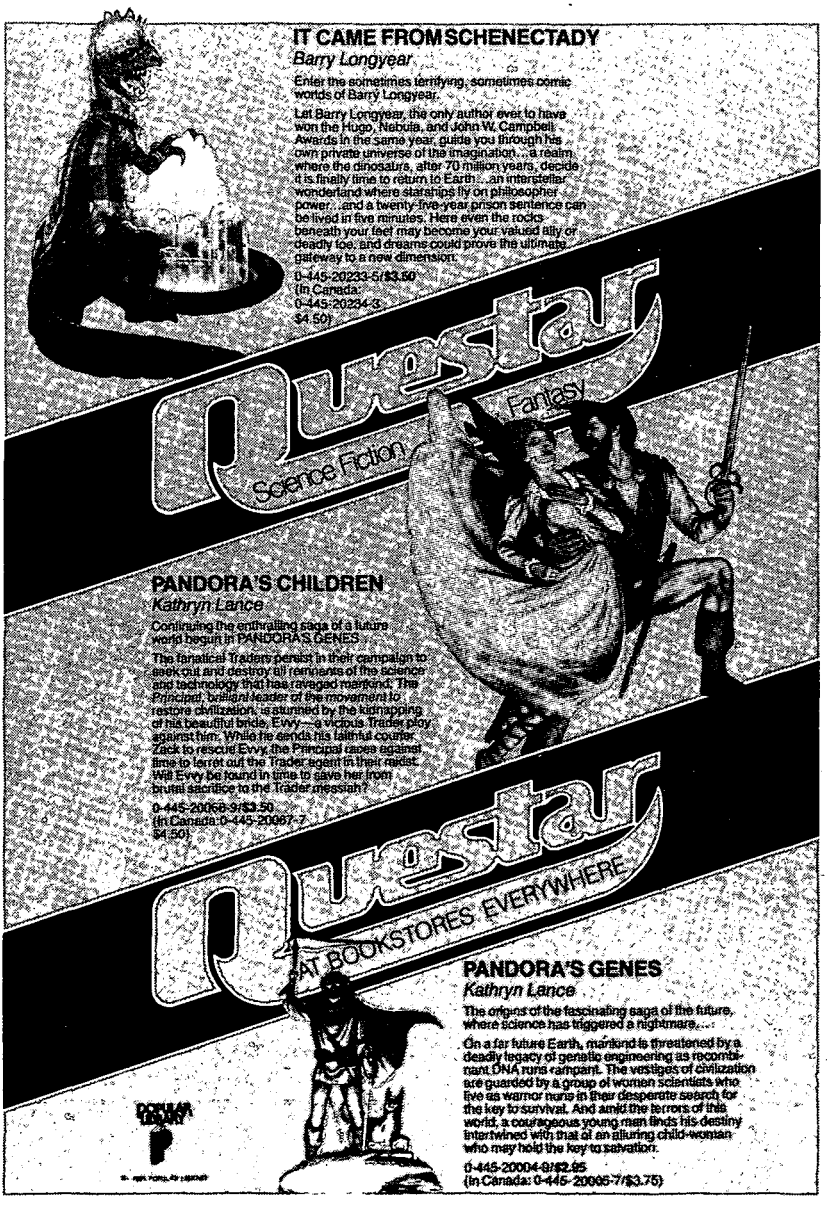

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ergy and, as near as could be made out, our heroine's gift for motion in a frozen world entailed no effort whatever.

Or let's look at it in another way. The world is frozen and the heroine can move freely, without energy-expenditure, and we are going to accept that. But how frozen is frozen?

If time has stopped, then everything is permanently locked into space and can't move. Yet the heroine is able to lift objects, drag human beings from one place to another, and so on. Even if some unexplained magic can keep her moving freely in a zero-flow-of-time situation, how can other things be made to move? They are, in effect, being made to move at infinite speed, requiring infinite energy.

In short, logic would seem to imply that even if time could be stopped and even if our heroine could move freely despite that, she should at least be limited to the point of being unable to manipulate other objects.

Consider something else. In the story, it seemed that only objects you saw were frozen. But what of air molecules, for instance? If time stopped so that you and I seemed to be frozen in space to someone who was free of its effects, the molecules in the air ought also to be stopped. If our heroine tried to move she would have to shove air molecules out of the way, which would mean inflicting infinite speed upon them and expending infinite energy. In short, she couldn't move—she, too, would be frozen on the spot.

Hey, that might be a good idea. Just imagine a story in which someone stopped time and found that not only the Universe was frozen but he (or she) was held permanently prisoner by the matter around him even to the extent where he could not say, "Start talking" and end it. Presumably, for the purpose of the story, he would retain consciousness and since time had stopped, he would be immortal. Imagine being imprisoned forever and *knowing* it.

Except—would our hero be conscious? Unless we are willing to make consciousness a totally mystical phenomenon, it has to depend on the movement of atoms and electrons in the brain.

But the movement couldn't take place if time were stopped, or if it did take place, it would represent infinite speed and, therefore, infinite temperature, and our heroine would be instantaneously turned into plasma.

But don't get me wrong. I'm not a spoil-sport. I *enjoyed* the drama, and though I might have muttered to my dear wife, Janet, "All this is impossible," I didn't let that interfere with my enjoyment. It's just important not to mistake fantasy for science, that's all. ●

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LETTERS

Dear Ms. McCarthy
and Doctor Asimov:

Rigid Southern upbringing forbids the "Shawna and Isaac" salutation, which somehow seems more natural.

I have been a subscriber for about two years now and have been a silent, interested observer. I look forward to the arrival of your magazine and expanding my horizons monthly. The GREAT DEBATES caused by the Viewpoint feature are terrific, with the sometimes sly humor injected into the responses.

Until now, no GREAT DEBATE has brought a letter from me to your doorstep, but I'll answer the most vivid in my recollection with my humble opinion now.

1. THE REJECTION SLIP: From the little knowledge I have gained from books and classes on writing, people were lucky for a long time. It was merely an economic necessity to delete so many personal responses. We understand.

2. HARD SCIENCE/SOFT SCIENCE/FANTASY: Keep on printing the best of all worlds. Isn't that what it's all about?

3. SEX/VIOLENCE: As in any quality writing, if it doesn't advance the premise, throw it out!

For what they're worth, those are my thoughts on the subjects which almost compelled me to spend twenty-two cents to put in my two cents worth. Now on to the business at hand.

You did announce the most unfortunate death of Mr. Tom Rainbow several issues past, and we have been able to continue enjoying his work. In the October 1985 issue, his final viewpoint appeared (The Mad Scientist's Primer). I have not enjoyed any article or story so enormously.

I am not very convinced of the afterlife, but reincarnation is a fascinating concept (though I also believe that's all it is). If Mr. Rainbow should come back into a life such as mine—working woman, wife, mother of two nearly teenage daughters, aspiring writer taking a correspondence course during spare time, with a dog and cat to round out the household—I hope he will discover a writer who can, even in the few moments of peaceful solitude of the bath, make a reader laugh aloud. Thank you, Mr. Rainbow, we'll miss your words and wisdom very much.

I would like to close with a definition. Friend: one attached to another by affection or regard. So I *can* get away with it! So long Shawna and Isaac—may all your stars be bright.

Susan Brannum
Birmingham, AL

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Thank you, Susan, but don't say "so long." Keep on reading the magazine and you will still have innumerable friends. Tom Rainbow has died, and Shawna has gone on to other pastures, but I am still here, and even after I am gone (we are none of us immortal) I hope that the magazine will remain and will even retain its name and still be your friend.

—Isaac Asimov

Dear Isaac,

Thanks for publishing some well-written, sensitive stories. Some of them don't seem much like SF to me, but I won't quibble—rigid definitions are for narrow minds.

I'd like to comment on something in Baird Searles' *On Books* column (October issue). In reviewing the book *Pandora's Genes,* he says the following: "intelligent, smoothly written . . . one simple problem . . . It's very like any number of intelligent, smoothly written novels that have appeared in the past few years."

I can't understand why that's a problem. I read and enjoyed this book. And I'll agree that the "post-disaster" scenario has been done before, and therefore has certain predictable elements.

Well, the same goes for a lot of other SF scenarios: the interstellar intrigue, the space pirates, and most of all the fantasy, which must *always* contain (a) Wizards (b) Dark Lords and (c) magic stones.

I'm willing to accept the fact that most SF plots have predictable elements, some of which rise logically out of the premise or out of human nature itself. What I can't stand are the ones that are written poorly, with cardboard characters. It doesn't matter if their concepts are dazzlingly new; I'd rather read something intelligent and smoothly written.

With all the literary junk food around, I'm grateful for a good meal—even if I just had one last week.

Laura Todd
Oaks, Pa.

It's difficult to argue with your point, and yet I imagine that if you had filet mignon for the fifth time in one particular week you might find yourself salivating for a peanut butter sandwich. Just for the change, you understand.

—Isaac Asimov

Dearest Shawna:

Avon Swofford's "Take the Low Road" touched me hard and touched me deeply. Thank you for the opportunity to feel so deeply.

I have hesitated to write to tell you and Dr. A how much I have appreciated the McCarthy touch for fear it would go away. Please, please keep the mix, it is great.

With love,

Norman A. Peterson
Peoria, IL

There you are. You finally wrote to tell us and the McCarthy touch went away. It was not your fault, however, and we must be certain that the Dozois touch will be, in its way, just as good, and possibly even better.

—Isaac Asimov

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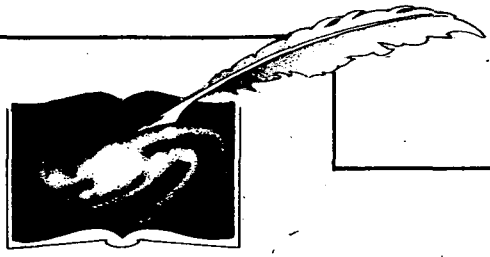

About L. RON HUBBARD's

Writers of the Future Contest

by Algis Budrys

The Writers of the Future contest substantially rewards at least twelve talented new speculative fiction writers each year. With no strings, every three months it confers prizes of $500, $750 and $1,000 for short stories or novelettes. In addition, there's an annual Master Prize of $4,000. All awards are symbolized by trophies or framed certificates, so there's something for the mantelpiece too.

There's also a Writers of the Future anthology, which I edit. (There was one last year, and there's another one just out as you read this.) It offers top rates for limited rights in the stories. These payments are in addition to any contest winnings. The anthology is distributed through top paperback book retailers everywhere, and is kept in print and on sale continually. All that's required to win or to be a finalist is a good new story, any kind of fantasy or science fiction, no more than 17,000 words long, by writers whose published fiction has been no more than three short stories or one novelette. Entry is free.

The contest deadlines in 1986 are March 31, June 30, and September 30, and there are First, Second and Third prizes for each three-month quarter. At the end of our year, a separate panel of judges awards a Master Prize to the best of the four quarterly winners. So one person will win a total of $5,000. Judging panels include or have included Gregory Benford, Stephen Goldin, Frank Herbert, Anne McCaffrey, C.L. Moore, Larry Niven, Frederik Pohl, Robert Silverberg, Theodore Sturgeon, Jack Williamson, Gene Wolfe and Roger Zelazny, as well as me. Matters are administered so that the judges are totally independent and have the final say.

It seems hardly necessary to embellish the above facts with any enthusiastic adjectives. This contest was created and sponsored by L. Ron Hubbard and the project will continue in 1986 and try to do some realistic good for people whose talent earns them this consideration. For complete entry rules, and answers to any questions you might have, write to the address given below:

Don't Delay! Send Your Entry To:

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Or, you can find the rules—and examples of winning stories, plus informative essays by some of the judges—in either of the Writers of the Future anthologies. They're original paperbacks and cost $3.95 each.

Good luck.

—Algis Budrys

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Dear Editors:

In his article "Star Peace?" Poul Anderson, a truly fine writer of science fiction, asked why the Russian government has so adamantly opposed Reagan's Strategic Defense Initiative if, as many of us believe, SDI is a disastrous mistake. "One would think," he writes, "they would be delighted to see us bankrupt ourselves buying a system that cannot possibly work."

I can think of three possible explanations.

1) The Russians *would* be delighted, and are trying reverse psychology. Farfetched? Maybe.

2) They think the U.S. can develop some sort of space defense system, and are reluctant to spend the millions needed to beat the system (with dummy warheads, antisatellite weapons, extra missiles, etc.). Note: "reluctant" is not the same as "unwilling."

3) They also believe a foolproof nuclear defense is possible, which only proves that Russian leaders are equally capable of folly. One side's wishful thinking is the other side's paranoia.

Perhaps it might be more fruitful to ask: if "Star Wars" truly offers both sides an escape from the dilemma of Mutual Assured Destruction, why would anyone object? (Reagan says we'll share, remember?)

Thanks for listening,

Greg Cox
Seattle, WA

P.S. The Great Rejection Slip Debate is getting boring.

Here's something else to think about. The United States spent ten years fighting in Vietnam, only to be defeated, to suffer high casualties, to split the nation and suffer wounds that have never quite healed, to distort our economy, alter our view of ourselves and, in every possible way damage the United States. Through every day of those ten years the Soviet Union denounced us and demanded we get out of Vietnam. So did China. Why did the Soviet Union do its best to save us from ourselves? Because they loved us? No. Because they wanted to portray us as villains and because they knew that we would never do anything at their urging. They succeeded, too. With the ardent help of Presidents Johnson and Nixon, the United States was *made into a villain. Now the Soviets want us to abandon Star Wars. Why? Because they think it will succeed. No! Because they know we won't do anything they urge and because they want to portray us as villains. And with the ardent help of President Reagan, they may succeed again.*

—Isaac Asimov

Dear Isaac,

By the time you read this, the elves in Marion, Ohio, will have my subscription renewal check in their small, magical hands. I am writing to let you know that the thanks is due to Kim Stanley Robinson. His novella, "Green Mars," is what caused my change of heart. I'm afraid I had not much enjoyed *IAsfm* for quite a while. I appreciate good writing when I read it, but appreciation does not equal enjoyment. John Steinbeck wrote marvelously crafted, *depressing* novels.

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I had reluctantly come to the decision to let my subscription lapse, when I read Mr. Robinson's story. It was like a breath of fresh air after so many stories where the authors's goal seemed to be sharing their depression with me (see, for example, "A Gift from the Gray-Landers," by Michael Bishop and "Shaping Memory" by Stephen Leigh in the same issue). The story in "Green Mars" captured my imagination, making me feel like I was there trying to climb the Olympus Mons with the characters. I also shared in the conflict between development and conservation played out on the highest mountain in the Solar System. For all this and more, many thanks to Mr. Robinson for writing, and to yourselves for selecting and publishing such an enjoyable piece.

Sincerely,

Bob Seevers Jr.

That's a general rule. If, for any reason, you're disillusioned with the magazine, just wait and you'll come across a story that will make subscription renewal vital.

—Isaac Asimov

Dear Dr. Asimov,

I am writing this letter in response to two things in the Nov. '85 issue of your magazine. First, your statement that you are not an editor much less a good one. Secondly, as I know you expected, this letter is also directed towards Mrs. Cox's letter. However, my response may not be what you expected.

In your editorial "Editors," you pointed out that a big part of an editor's job was to put out a magazine. I agree with this, but you must go one step further: their primary duty is to sell their publication. There are a large number of tricks or tools that editors use to do this, one of which is the letters to the editor section of their publication, *Pravda* and the *New York Times* being excellent examples. In a previous issue of *IAsfm* you stated (in response to a letter) that you choose which letters to put in the magazine. Therefore, it is you who must take credit for running Mrs. Cox's letter, an *editor's* dream. It was (1) concerned with a controversial issue and (2) it came out strongly for one side of that issue. This not only guarantees reader response, it also gives the editor the all important excuse, "I just wanted to clear the air and this letter allowed me to do that," if he (or she) is confronted about its printing. I don't think you could convince me that the only reason you chose to run Mrs. Cox's letter is that it gave a chance to lay the sex issue to rest. I believe in your sincerity (but PhD's are always devious!) so maybe you just used this editorial tool by accident. Either way, you're still an editor in some ways and a good one at that.

Howard C. Kirby
Houston, TX

P.S. One of my greatest disappointments was when upon receiving my first issue I opened to see that you did not look at all like I had pictured the great (in my opinion) Isaac Asimov. Don't feel bad though, writers never look the way their readers picture them. One more thing, if you don't print this I'll know that you're an even more crafty *editor* than I suspect.

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You can't really tell I'm a good editor by the letters I select. How can you know what letters I don't *select? As for my looks, I study them in the mirror everyday, and I assure you that I look* exactly *like Isaac Asimov.*

—Isaac Asimov

Dear Doctor Asimov,

In reply to your editorial in the November issue; I am one of those who is both a dedicated writer as well as an editor and felt that a few comments might be appropriate. I, too, am unable to decide which of my stories are good ones, and which are not so good. I can tell when I've written an exceptional story but, generally, I think each story I put down on paper is good, even the dismally poor ones. At the same time, I can nearly always distinguish the good from the bad when I am reading submissions. But, to make the whole thing more mysterious, I couldn't begin to explain to you why I am able to make that distinction as an editor. I can, of course, explain it away with such things as proper English, punctuation, plot construction, character, and other such common technicalities. But how to explain knowing that a poorly written story has something that causes me to accept it and ask for a rewrite or two? How to understand accepting stories that I, personally, don't care for at all, yet know that others will admire. I submit that being an editor is just as strange a process as being a writer, in many ways, and just as incomprehensible to the people who practice that odd art. But, yes, there is a certain (dare I say it?) love that must be present in editing, a certain enthusiasm for reading stories and putting them on the printed page. I've been lucky enough to see stories that I've critiqued and rejected and offered market information for end up in some of the better magazines with my suggestions implemented. There is a thrill in that, second only to seeing one of my own stories in print. The only way I can truly explain being an editor, is by saying that editors are people who love writers, who live to encourage the good ones and, cruel as it may sound, discourage the rest. What the hell, it's kind of fun, no matter how you look at it. And the amount of knowledge gained from editing has strengthened my own writing to a great degree so that I at least don't make stupid mistakes and my stories are professional, even when they're not very good. It's not for everyone, of course, but thank the Gods there are a pretty good supply of them out there. If there weren't, what on Earth would we have to read?

I've also discovered another solution to Martin Gardner's Drac's Scissors problem. After a 360 degree twist, all one has to do to return the strings to the untwisted position is to hold the scissors in place and rotate one's body around them. Yes, I know it's cheating, but after all, it didn't say that moving one's body was against the rules and some of us are pretty sneaky.

Happy Trails,

Ron Leming
Lancaster, CA

John Campbell used to say that he had the editor's essential "unlearned talent." He could spot the

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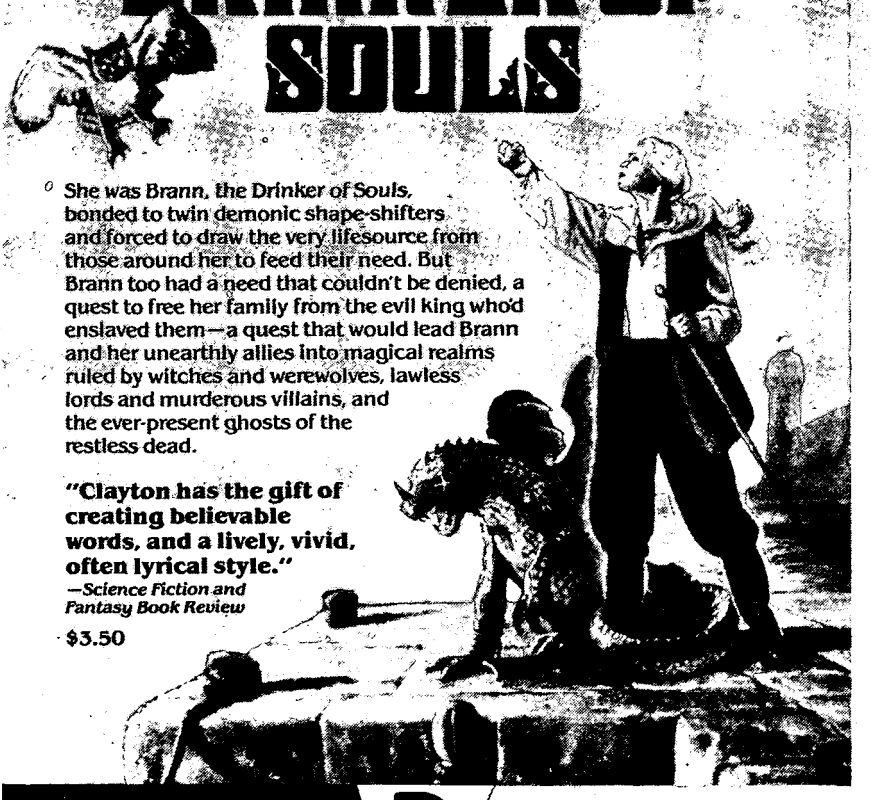
Possessed by shapechanger's magic, she had mastered the powers of life—and death...

JO CLAYTON

DRINKER OF SOULS



She was Brann, the Drinker of Souls, bonded to twin demonic shape-shifters and forced to draw the very lifesource from those around her to feed their need. But Brann too had a need that couldn't be denied, a quest to free her family from the evil king who'd enslaved them—a quest that would lead Brann and her unearthly allies into magical realms ruled by witches and werewolves, lawless lords and murderous villains, and the ever-present ghosts of the restless dead.

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DAW FANTASY

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potentially good writer behind the hopeless story submission. And he looked very hard at me when he said it, but he didn't have to. I remembered my impossible first story and his encouraging rejection letter very well.

—Isaac Asimov

Dear Dr. Asimov,

Hi! I have been a subscriber to your magazine and I have enjoyed reading it very much.

I have one small complaint that I would like to make. No, it's not about sex or violence, it is about advertisements. I would like to know why they run advertisements in between stories? I know as in television you have them to pay for the shows and thus commercials/advertisements are used.

However, I would like to make one small suggestion. I would like to suggest that you put the advertisements at the beginning or ending of each story. I am not saying I am against advertisements, but I feel that there are too many of them. Being interrupted in the middle of a story by an ad is a real drag.

I would read all of the ads if they were at the beginning or the end of the story, as it is now, I just ignore them altogether.

How about doing a limerick on advertisements for me? Thank you for your time.

Page Eileen Lewis
Wilmington, DE

Annoying but needed are ads
They are there, but they don't
make us cads.
If we took them away
And asked you for the pay
We'd have five bucks an issue, my lads.
Gardner or Sheila, why is it necessary to have them interrupt stories?

—Isaac Asimov

All advertisers request that their ads be positioned as far forward as possible, and that these ads be on right hand pages. As the number of advertisers has increased we have reluctantly found that it is impossible to comply both with this wish and to position ads only at the beginnings or endings of the stories and articles in the front of the magazine.

—Sheila Williams

Dear Editor:

I have never written before but I have been a subscriber for several years and have no intention of stopping the subscription. I love reading the magazine and look forward to seeing it in my mailbox every month. Now to the reason I am writing. I have just finished reading "An Infestation of Angels," in your Nov. '85 issue. My first reaction was anger. I thought I was going to read a "new" science fiction short story and instead was treated to a cheap rehash of Moses leading the children of Israel out of Egypt. I must say that I prefer the original. After my anger subsided I admitted to myself that the story was humorous. Was this your way of dealing with all those letters that wanted puns in the magazine again? That's all I have to say. You must admit if that's my

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only complaint after all these years of reading the magazine, the future of your magazine is safe.

Cathlene Schall
4852 N. Muirwood Ct.
Simi Valley, CA 93063

A great many good stories have been written in science fiction and elsewhere that represent a new look from a new angle at an old and well-known legend. Sometimes it can be illuminating. At any rate, one complaint in three years isn't bad.

—Isaac Asimov

Dear Friends,

I have enjoyed your magazine since I accidentally found it on the religious book rack at the local grocery store. I immediately subscribed to it, as it is the only science fiction magazine I have seen around here. I have never been disappointed.

However (doesn't a wonderful beginning like that always have a however?), I do have a few opinions I would like to share with you.

I also love "On Books." I live in a very small community in southern Indiana and we do not have a big book store within fifty miles of here. "On Books" gives me a chance to find out about new science fiction books before they come and go at the very distant book stores.

I like the "Viewpoint" articles but I wish they were a little shorter sometimes.

One of my favorite things about your magazine has always been the artwork. The style and quality of the artwork that goes with a particular story has always influenced my opinion of that story. That may not be a very good thing. I realize a good story may be prefaced by artwork I personally don't like, but I can't help it. I guess it is just one of my personal quirks.

About the editorials, why don't you have more editorial contests? The few that you have had since I have been a subscriber (August 1980) have only whetted my appetite for more.

This may seem to be a snigglin' little complaint to some people, but it is a very important one to me. It used to be that I could open my latest copy of *IAsfm's* and the stories would progress from the short stories first, to the longest stories last. This may seem very unimportant, but I dislike to thumb through a magazine looking for a short story (yes, I know, almost all of your stories are short stories, but I'm talking about the difference between short short stories and long short stories) and I also dislike leaving a story before I'm finished with it, and I often have only a short time to read at lunchtime.

I guess I've said just about all I have to say about your magazine except, keep up the great work!

Beth C. Masterson
Star Route Box 23
Tobinsport, IN 47587

Well, I haven't thought of any good editorial contests lately. If anyone has any suggestions, I will be glad to listen. —And you don't have to thumb through the magazine, you know. If you study the page listings on the contents page you can figure out the short stories.

—Isaac Asimov

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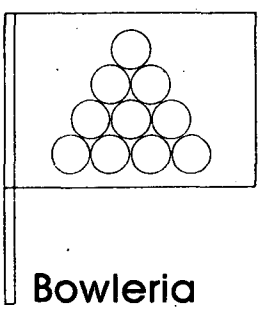
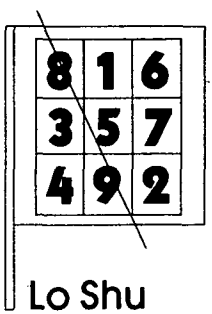
MARTIN GARDNER

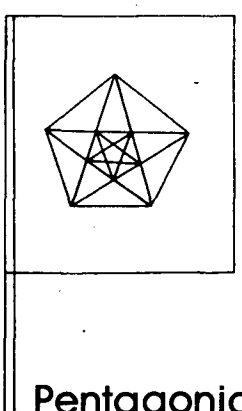
PUZZLE FLAGS ON MARS



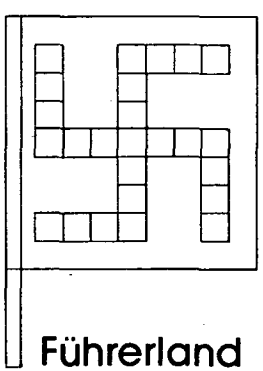
Bowleria



Lo Shu



Pentagonia



Führerland

FOUR COLONY-FLAGS ON MARS

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Before the middle of the 21st century, hundreds of colonies were flourishing on the red planet, each under an enormous transparent dome that permitted sunlight to pass through, held the artificial atmosphere, and allowed for farming. Each colony had its own flag flying from the top of its dome.

Recreational mathematicians can find puzzles in almost anything with a mathematical structure, and flag patterns are no exceptions. I've made here a selection of four Martian flags that present simple but fascinating puzzles. Moreover, they are all puzzles not yet well known.

Consider first the flag of a colony called Bowleria, founded by a group of Americans who had a passion for bowling. As you see in the illustration (top left) the design consists of ten circles arranged like a set of bowling pins viewed from above. Your task is to shade four of the circles so that no three of the unshaded circles mark the corners of an equilateral triangle. There is ony one basic way to do it.

Incidentally, it is *not* possible to color the circles with two colors so that no three circles of the same color are at the corners of an equilateral triangle. Proving this is harder than the problem given. If you're interested, you'll find a proof in Chapter 7 of my *Unexpected Hanging*.

Consider next the flag of a Chinese colony on Mars called Lo Shu. *Lo shu* is the ancient Chinese name for the classic 3 × 3 magic square shown in the picture (top right). Aside from rotations and reflections, it is the only way the first nine consecutive counting numbers can be arranged so each row, each column, and each of the two main diagonals, adds to 15. Your task is to draw a single straight line across the *lo shu* in such a way that it passes through the interiors of a group of cells with the largest possible sum. In the picture you see a line crossing four cells. Their sum is 25, but you can do better.

Here are two more questions about 3 × 3 magic squares, both easily answered if you have the right *aha!* insight. Can you make a 3 × 3 magic square with the consecutive *even* numbers: 2,4,6,8,10,12,14,16,18? Can such a square be made with the consecutive *odd* numbers: 1,3,5,7,9,11,13,15,17?

Our third puzzle is based on the flag of Pentagonia, colonized in the 2030s by a band of Spanish explorers. The flag is shown at the lower left of the illustration. Its five-sided diagram is closely related to the pentagram of the ancient Greek Pythagorean brotherhood. It has many curious geometrical properties, but your task is merely to count the number of different capital *A* letters—the initial of Asimov—that are in the diagram.

We must carefully define what is meant by an *A*. The two line segments that meet at the top must be equal in length, and the cross bar must form an isosceles triangle. The *A* may be as wide or narrow as you please.

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Its legs below the cross bar may be short or long. All five nodes on the *A* must be nodes on the diagram, and of course the letter may be turned in any orientation.

When this problem first appeared in an Argentine game and puzzle magazine called *Cacumen* (December 1984), the editors gave an answer of 25. Readers were quick to point out that this was wrong. There are more than 25 *A*s in the pattern.

Our final puzle, the hardest of the four, is based on the swastika shown on the flag at lower right. This is the flag of Führerland, a colony founded on Mars by German neo-Nazis. Your task is to cut the swastika along the interior lines into the fewest number of pieces that can be rearranged to make a 5 × 5 square.

When this tricky dissection problem first appeared in the *Pi Mu Epsilon Journal* (Fall 1983), the proposer thought it could not be solved in fewer than five pieces. (One particularly pleasing solution is to cut a 5-cell Greek cross from the swastika's center, then fit the four truncated arms symmetrically around it.) To his great surprise, one reader, Emil Slowinski, came up with a four-piece dissection. I shall withold Slowinski's ingenious solution until next month. Answers to the other questions are on page 105. Needless to add, you should try to solve the puzzles before checking the solutions.

Speaking of swastikas, do you know how to make a Nazi cross with five matches? You stick four of them you-know-where, then light them with the fifth!

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A MALEFIC

Cockroach, eater of refuse, crawler
in corners, inhabitant of dark spaces,
unwanted denizen of all our
proud modern cities, scourge of all races;
disgusting, vile, unkillable
by any but the heaviest tread
or the most corrosive chemical;
prolific, selectively bred
to survive any adversity:

though your species will continue
long after the end of humanity
it consoles me somewhat that in two,
or four, or perhaps five billion years
the Sun will explode in your sky
and your Earth will boil and sear
and every last one of you will die.

—Thomas Keamey

art: Sheila Smith

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GAMING

by Matthew J. Costello

For some time now, The Avalon Hill Game Company has made it a practice to pick up good games from defunct companies, refurbish the rules and components, and release the game for a new, wider audience. In 1984 World War II buffs were treated to a beautiful reissue of *Hilter's War*. And 1985 brought *Stellar Conquest*, a serious SF game and destined to be one of the classics of the genre.

Stellar Conquest (The Avalon Hill Game Company; $24.00) is described as an "intergallactic battle game," but it's really more than that. From two to (ideally) four players enter a galaxy to explore stars for new worlds. Stars can have "terran-like" worlds, suitable for colonization, or lesser types such as "sub-terran" or "barren." All worlds have a maximum population that can live on them and some may contain valuable mineral deposits.

The players move their star fleets toward the center of the board, drawing an appropriate planet card based on the type of star they explore (with yellow stars more likely to have terran worlds orbiting them). The fleets are made up of colony transports, to move people to worlds, scouts, to explore worlds, and corvettes and fighters to battle other forces.

Once a star has been explored and any planets discovered, a player can set up a colony by debarking colonists. On every fourth turn there's a special production turn where population growth is computed (on terran or sub-terran worlds only) and factory productivity is added up. Together, colonies and factories yield what's called industrial output.

Now comes the fun part, where players get to shop in the high-tech supermarket of space exploration. Players can use their industrial output in a wide variety of ways. Investing in Ship Speed Research can gradually increase ships from their normal two-hex speed to eventually a speed of eight hexes a turn. An investment in Weapons Research produces missile bases and fighter ships, and can lead to a trusty Death Star (which hasn't seemed too effective in any of the *Star Wars* films). And for really big spenders there's my favorite, the Planet Shield which protects a planet from *any* attack.

Technological Research offers a whole menu of esoteric goodies. To begin with there's Controlled Environment Technology, which allows barren planets to be colonized, and Industrial Technology, which allows factories to be built more easily. More expensive, but worth

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your consideration, are Unlimited Ship Communication and Robotic Industry, which lets a player establish any number of factories on a colonized planet.

Of course, players can simply use their industrial output to build new scouts and warships, not to mention the new colony transports that will undoubtedly be needed, but it's wise to begin investing on research. Otherwise your forces may begin looking like a primitive, defenseless wagon train crawling across the galaxy.

And yes, eventually combat comes into play. Initially the galaxy is big enough so that players are busy puttering around, checking out stars, and starting colonies. But rapid expansion is built into the game, and before long war will break out. (This is when all those players who invested in Weapons Research will begin their mad cackling. Be warned.) Combat in space is fought only in star hexes. The attacker selects a target for each of his warships, and the opponent does the same. A die is rolled for each attack and a simple Attack Table gives the range of numbers for a successful "kill." Since combat is simultaneous, the defender can always return fire. At any point a player can withdraw ships from a star hex and take it to another destination.

Any colonies at neighboring planets can then be attacked, with defenseless colonies automatically defeated. But since players install missile bases secretly, an attacker may be rudely suprised by a barrage of missiles heading towards his warships. And, as mentioned, colonies protected by a Planet Shield are unconquerable.

A conquered colony becomes the property of the conqueror. The enslaved population will produce for the new owner but they will not build missile bases or a planet shield (probably, I guess, due to the danger of sabotage). Finally, the winner is the player controlling the most terran and sub-terran planets at the end of 44 turns.

Stellar Conquest is filled with nice touches. The components are top-notch, with a colorful map-board that displays the galaxy, the tables needed for play, and a place to hold the planet cards. Each player has an easily filled out record sheet to mark down all colonies, their current population, factories, and defense systems. The bottom of the sheet lets players record progress in the research areas. A complete reduction of the galaxy map is found on the back so that players can note the results of their exploring task forces.

And besides being a rich game, *Stellar Conquest* is very playable. If one person is familiar with the seven pages of rules, play can begin in a very short time. Though rated by The Avalon Hill Game Company to be of medium solitaire suitability, Stellar Conquest is really a terrific game for four people on a Friday night. Good multi-player SF games are rare, and *Stellar Conquest* is one of the best. ●

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VIEWPOINT

ROBOTICS AND COMMON SENSE

art: Arthur George

by Philip E. Agre

Preparing breakfast may be one of the most routine and boring chores of the day. It's so monotonous that it seems easy to imagine a robot taking over the job. But in the following Viewpoint, Philip E. Agre—a graduate student at the Artificial Intelligence Laboratory of the Massachusetts Institute of Technology—shows us why we can expect to see a robot who doubles as a chess grand master long before we can see one who can claim to be a good cook.

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VIEWPOINT

A woman I met on the subway understood right away why it's interesting to try to build a robot that makes breakfast.

"Oh," she said, "*I'm* a robot when *I* make breakfast."

Present applications of robots are true to the stereotype of the robot: routine in the extreme, the same stiff motions over and over, with little or no variation. We might expect making breakfast to be an interesting next task for robots because, at least for Americans, it is the stereotype of a mindless routine among our day-to-day activities. Making breakfast *feels* automatic, a rote skill to be mindlessly cranked through every morning, but that feeling is an illusion. You can't make breakfast unless you can deal sensibly with the innumerable mundane contingencies of milk shortages, burned toast, dropped spoons, and absurdly tightly glued cereal packages. Human breakfast-makers who drop their spoons just pick them up, clean them, and continue on, but industrial robots that drop their screwdrivers are dumbfounded. This is the paradox of common sense: Actions that feel automatic are actually backed up by a great deal of understanding of why those actions are the right ones. In other words, human breakfast-makers understand what they are doing and present-day industrial robots don't.

The robots of science fiction are still fiction, but robotics is far enough along that we don't have to leave to the imagination what robots will be able to do, and what it will take to make them do it. To guess how far off some robot ability is, we must first understand in detail *what* that ability is. That done, we can figure out what that ability might amount to—both in people and in robots. Intuition says that, among intellectual feats, playing chess is hard and making breakfast is easy. But intuition is wrong. AI researchers have found that some stereotypically intellectual tasks, like playing chess and diagnosing certain illnesses, are remarkably simple for a machine to perform reasonably well, once the tasks themselves are understood. Machines can already make medical diagnoses and play good chess.

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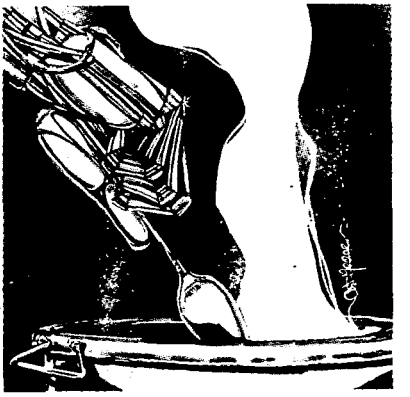
Playing chess is easy, but making breakfast is enormously complicated. This complexity stares us in the face every morning, and yet it is invisible. The things machines now do best involve carefully defined and rigidly controlled little worlds, like the world of a chessboard or the domain of an assembly line. This is the *opposite* of common sense, which is the skill of dealing sensibly with the messiness of the world of everyday life. Rather than reflecting a single insight, or algorithm, common sense is made up of a lot of little ideas and simple skills. That any bit of common sense looks obvious by itself often masks the astounding complexity of common sense as a whole and the extraordinary difficulty of acquiring it. To understand common sense, we have to look at it *as a whole*. I propose to take a close look at the common sense of two parts of the everyday lives of ordinary people, making breakfast, and getting along with other people. Afterward, I will speculate about how we might use what we've learned about common sense in building a robot that has it.



"... human breakfast-makers who drop their spoons just pick them up, clean them, and continue on, but industrial robots that drop their screwdrivers are dumbfounded. This is the paradox of common sense: Actions that feel automatic are actually backed up by a great deal of understanding of why those actions are the right ones. In other words, human breakfast-makers understand what they are doing and present-day industrial robots don't."

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VIEWPOINT

What does your understanding of the process of making breakfast consist of? In making breakfast, you think about using your hands to work with tools, you think about the things (food) you will be manipulating with your tools, and you think about the physical process (mixing, frying, boiling) that those manipulations will set in motion. Using precise theories of physics and chemistry for this thinking is much too complex and not really necessary (Do you need to know what is going on when your cornflakes are getting soggy?). How does the surface tension of liquids work? *I* certainly don't know. It suffices to know that these things happen, and to have a rough understanding of their consequences in the few situations in which they matter.

The average breakfast-maker avoids thinking about the full complexity of breakfast-making by choosing a simplified *model* of each bit of the task. A model is just whatever intuitions you have about a bit of the world that let you guess what's going to happen in it. A good model captures the circumstances of each bit of your task in just enough detail to suggest a good-enough plan for carrying it out. Models can often be visualized and set down as diagrams. Some are more detailed than others, like a model of friction that distinguishes between static friction and sliding friction, as opposed to one that doesn't. The theories of physics and chemistry are the most detailed models of all. Simple models are easier to make and use than complex ones, but they often make wrong predictions or none at all. University of Rochester AI researcher Patrick Hayes calls the study of models of the physical world *naive physics*.

Imagine that you're trying to figure out for the first time how to eat scrambled eggs with a fork. You can think of the business end of your fork as having a number of different physical structures, depending on what you intend to do with it. For cutting your food, you're better off thinking of it as a sharp blade. For scooping the food, it's a thin, rectangular plate. For stabbing the food, it's a collection of pointed spears. For mashing the food, it's a sort of grating. It's the same fork the whole time, but its real shape is complicated. It's a waste of time

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VIEWPOINT

to think about the fork's tines while scooping with it or to think about its edges while stabbing with it; a good model suppresses irrelevant details and lets you concentrate on the important ones.

Much of the common sense of breakfast-making is in knowing when to use which simplified models. Most of the thoughts our average breakfast-maker ever thinks, in fact, can be phrased in terms of perhaps a couple of hundred *generic models*. Generic models are simple models that serve as the building blocks of the more elaborate models of real tasks. Blades, plates, spears, and gratings are generic models of the physical structures of objects; other generic models concern physical processes—plans, substances, operations on substances (like mixing and carrying), and so on. Several generic models can be applicable to one situation, and the same generic model can show up in a wide variety of tasks. By knowing the generic models and how to use them, you can (and probably do) think your way through breakfast without solving a single equation.

Each model of an object includes a plan for using it. Blades are good for cutting, flat thin plates for scooping, pointed spears for stabbing, and gratings for mashing and straining. A good rule is to use the most convenient model to make a plan, and use the least convenient model to predict what might go wrong with it. When you try to scoop up the last of your eggs, the business end of your fork might behave not like a thin plate but like a surface whose edge pushes the eggs away. If this happens, you can patch your plan by blocking the eggs with a knife to keep them from being pushed away. You might also choose a different model of the fork and try stabbing with its tines. In desperation, you can use your hands; because human hands can be made to fit so many different models, one of them is sure to suggest a plan that will work.

The same models of the physical world that help you to move around in it also help you interpret your perceptions of it. Your models of objects and processes make assertions about them that you can use in making deductions. When your knife

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won't move any farther into a peach, you can assume it has hit the stone. When the kettle is whistling, the water is boiling. When you hear a cracking sound, it may have been an egg that rolled off the countertop.

Some generic models, like the different models of a fork's structure, are specific to thinking about the physical world. Some models, though, are much more widely applicable and can be found underlying all kinds of reasoning. MIT AI researcher David Chapman calls these *cognitive clichés*. Consider, for example, the idea of a *resource*. (Milk, money, time, train tickets, and slices of banana on your cornflakes can all be resources.) Some activities consume resources, either continuously or in chunks; if you keep consuming a resource you can run out of it entirely; and if you're in danger of running out of a resource you may want to conserve it. Something you figure out about resources in one context (make sure you always have some extra milk on hand, just in case) might be as useful for other resources (money, for example, or the time allocated for a project). Cognitive clichés are the simplest and most powerful of models, so much so that whole branches of mathematics are devoted to investigating their properties.

To give you some idea of the range and properties of generic models, here is a rough sketch of how a breakfast-making robot might use them to understand why there's a limit to the number of eggs it can cook in an omelette in a given pan. (The names of the various pieces of generic models it might use appear in italics.) This story isn't physically accurate in every detail, but rather a series of well-chosen approximations.

The robot must first beat some eggs. This turns a *finite set* of four eggs into a *liquid object*, which the robot then pours into a pan. With the change in form of the egg, the models provide a change in the form of the question. *Have we got too many eggs on the countertop?* becomes *Have we got too much egg in the pan?* The two questions are equivalent, even though eggs in shells are measured by counting and liquid egg is measured by volume. (This isn't obvious to small children, or to robots.)

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VIEWPOINT

Since the count of four eggs as too many hasn't got much to do with the volume of egg-stuff in the pan, the first question can be answered only by answering the second.

More factors to consider. The stove's burner provides *energy*. Because its flame is in contact with the pan and the pan is in contact with the egg, a *process* of heat *flow* exists between the flame and the pan and the egg. Whenever something is flowing into an object, the corresponding *state variable* of that object increases. So, the robot infers, the longer the egg stays in the pan, the hotter it gets. As the egg gets hotter, it passes through three *phases:* first liquid, then congealed, and, finally, burned.

In thinking about eggs, the robot will find what is hard is that the simplest models make wrong predictions. Each time this happens, the robot will have to convert its understanding of omelette-making into a new, more complex model. In the simplest model, there is just one object made of egg, and it occupies the whole pan. As heat flows into this egg-object, it will change from liquid to congealed to burned. This model predicts that no matter how much egg is in the pan, it will be all liquid or congealed or burned. But when black smoke appears from a panful of half-cooked egg that is still too slimy to eat, the robot will discover that this isn't always true.

A failed model can suggest ways of choosing a new model. In this system (frying pan and its contents on a stove), all the processes operate *uniformly* across the *plane* of the pan's surface—a good pan heats evenly. This suggests that the robot make a model of a vertical *cross-section* of the egg sitting in the pan. In this cross-section model there is a bit of flame, a bit of pan, and a line of egg. Now the robot translates its question, from *Have we got too much egg in the pan?* to *Is the egg in the pan too deep?* But even this model doesn't explain the problem, since there is still a heat flow from the flame to the pan to the single linear egg-object, which still should be all liquid or all congealed or all burned. So the robot decides that it needs another new model.

A good way to make a more detailed model of a linear object

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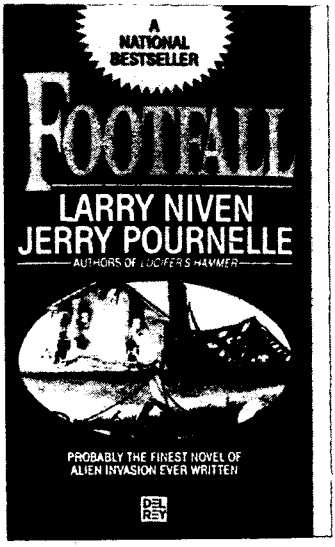

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"The process by which a person comes to believe in social abstractions, defines herself in terms of them, and decides what to do because of them is what sociologists Thomas Berger and Robert Luckmann call the *social construction of reality*. Any robot that is going to operate outside of a highly constrained environment like that of a factory will have to understand a great deal about how to get along with others, both robots and people."

is to break it up into a *chain* of individual pieces. So now the robot imagines—all in a stack—a bit of flame, a bit of pan on top of the flame, and, this time, many bits of egg, each bit on top of another and the bottommost bit sitting directly on the pan. In the vocabulary of linear chains, the first, bottommost bit of egg in the pan is the *front* of the chain, the topmost bit of egg is the *end* of the chain, and the phrase *on-top-of* expresses the *successor relation*. Now the robot has a model of the heat flowing from the flame to the pan, from the pan to the first bit of egg, from the first bit of egg to the second, and (so the linear chain model says) from each egg bit to its successor; this process is the cognitive cliché called *propagation*.

Recognizing propagation is important, because the robot is likely to have run into other propagations; whatever it figured out about them ought to be true about heat propagating along chains of egg-stuff as well. Since there is a heat flow into each bit of egg, each bit of egg, left to heat up, will eventually congeal and burn. The propagation model says

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that the temperature of each bit of egg in the chain will be higher than that of its successor, and so each bit of egg will congeal or burn before its successor. This will suggest that there is an entity, a congealing *transition*, that propagates along the chain. It starts at the bottom of the egg and eventually reaches the top. So too will another entity, the burning transition. The longer the chain, the longer an entity takes to propagate. The breakfast-maker can finally conclude that if the chain is long enough, then the congealing entity will still be moving toward the top as the burning starts from the bottom. In other words, if you have too many eggs in the pan then the bottom will burn before the top has congealed. You can alleviate the problem by turning the heat way down and waiting half an hour; this is called a *frittata*. Or you can distribute the heat more evenly over the eggs by stirring them; this is called *scrambled eggs*.

Most of the reasoning about models that a robot will have to do in the course of a day won't be this complex, but the procedure is always the same. Start with a simple model. When the model makes an incorrect prediction, use what you know about generic models to build a new model. Each time you move from one model to another, the models themselves will tell you how to translate both what you know and what you want to know into the new model. The new model will suggest some new ways of thinking about what you *do* know; in this way you might find out what you *want* to know. When you succeed you will have constructed a line of reasoning that can apply easily the next time you need it, whether the context is making pancakes or a steak, or understanding why you have to stir just about everything you're heating in a pan. In these cases the particulars are different, but the form of reasoning remains the same.

Whether you learned to make breakfast by watching other people do it, by figuring it out from scratch, or by some of both, the sort of understanding I have just described underlies your breakfast-making routine. No doubt there was room for improvement in your first breakfast-making routine, and

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you had to deal with a lot of specific problems: How can you reliably tell how much milk to put on your cereal? How can you minimize the risk of getting eggshell in with your eggs? Do you have to use a knife to slice a banana? How can you avoid the teapot effect, whereby a liquid defies gravity and dribbles from the outside of the container it is being poured from? Do you have to make a fool of yourself to retrieve the prize from the bottom of a new box of cereal? Can you avoid the unpleasantness of eating the dust at the bottom of an old box of cereal?

The back of your mind puts a lot of energy into recognizing solutions to the problems of your breakfast-making routine, even when those solutions are hidden. Here again the power of suggestion of generic models can help. Imagine that you had wondered if there was a way of slicing the banana for your cornflakes without having to clean another utensil. Your perceptual systems are always trying to apply the generic models to whatever is at hand. Thus, as your spoon passes through the surface of the pile of cereal in your bowl you might notice that it can also be thought of as *cutting* the cereal. It is always a good idea to generalize a novel observation: *What use is it to cut the cereal with a spoon?*

The back of your mind is always ready for questions like these. *How about cutting the banana with the spoon?* Many people have discovered this trick—and many haven't.

Part of common sense, then, is noticing opportunities to act more sensibly in the future and changing your plans accordingly. This ability to think about and modify your own mind is *introspection*. Other things you learn about changing your routine plans involve making one action serve several purposes, or rearranging the steps to allow several processes to proceed at once. Take another part of making breakfast, brewing tea. The steps involved in brewing tea are:

- putting a tea bag in a cup
- pouring hot water into the cup
- waiting a few minutes for the tea to steep
- throwing out the used tea bag

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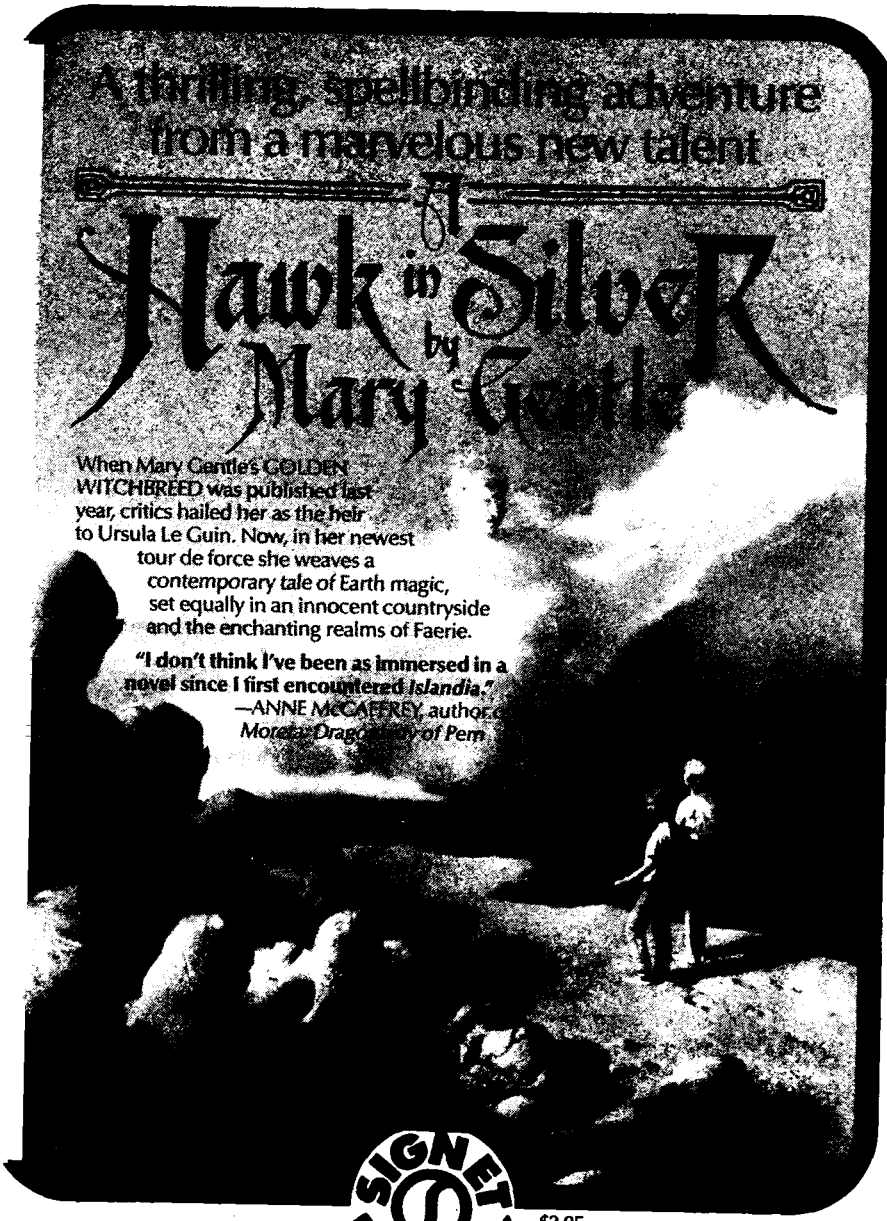
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VIEWPOINT

It is natural to put the water on to boil after setting out the cup and tea bag. But after doing it this way a few times, the introspective tea-maker will notice that it would be better to put the kettle on to boil first, since there is plenty of time to get out the cup and tea bag while the water heats up. Having learned this trick, you might further break down the step of heating the water by figuring out that it is best to turn on your electric stove before filling the kettle rather than after. Though it might be possible in principle to think up all desirable improvements to a plan ahead of time, in practice it is difficult and is often a waste of time. Even so, you can learn to think of *particular* improvement tricks by learning to recognize the situations where each is applicable.

In ways like this, your plans evolve over time. On a larger scale, the plans of a culture also evolve, and evolving along with a culture's plans are the tools it uses. The understanding encoded in tools is part of a cultural background of assumptions you can make without thinking. You regularly assume that there are no holes in the pots and pans, that there is some salt available, that the knives are reasonably sharp, that the utensils are in a waist-high drawer in the vicinity of the sink, and that there are no hidden edges to cut yourself on. These assumptions are part of the kitchen as an institution; by making convenient models true, they let you count on simple plans working right. In this sense you have a sort of contract with your kitchen. The details of that contract are part of our culture, the accumulated wisdom about how a kitchen should be organized that is handed down from generation to generation. Since everyone relies on the kitchen to keep its contract, details of that contract in turn become matters of politeness binding on everyone who uses the kitchen. For instance:

If you don't clean it up then someone else will have to.

Because it is the first cultural institution with which most children come in contact, the kitchen is important in the study of the development of a child's reasoning about social abstractions. A child hasn't got

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the knowledge or the logical ability to figure out, or even entirely understand, all of the reasons that one must keep the kitchen a certain way. A child who leaves a mess or doesn't put something away is sometimes lectured and sometimes punished on the institutional reasons that what he or she did was wrong.

This confluence of logic and force sets the pattern for later, often less benign, encounters with institutions and their ideologies. The process by which a person comes to believe in social abstractions, defines herself in terms of them, and decides what to do because of them is what sociologists Thomas Berger and Robert Luckmann call the *social construction of reality*. Any robot that is going to operate outside of a highly constrained environment like that of a factory will have to understand a great deal about how to get along with others, both robots and people. Much of this understanding is handed down through the culture in the form of customs and etiquette; even so, getting along with others requires us to use common sense.

The extent to which it is already possible for a machine to "understand" the complexities of social interactions is indicated by the work of UCLA AI researcher Michael Dyer. Dyer wrote a program called BORIS that used its understanding of human emotions and of common kinds of social interactions to do a quite convincing job of understanding and answering questions about the following rather complicated story:

> Richard hadn't heard from his college roommate Paul for years. Richard had borrowed money from Paul which was never paid back, but now he had no idea where to find his old friend. When a letter finally arrived from San Francisco, Richard was anxious to find out how Paul was.
>
> Unfortunately, the news was not good. Paul's wife Sarah wanted a divorce. She also wanted the car, the house, the children, and alimony. Paul wanted the divorce, but he didn't want to see Sarah walk off with everything he had. His salary from the state school system was very small. Not knowing who to turn to, he was hoping for a favor from the only lawyer he knew. Paul gave his home phone number

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in case Richard felt he could help.

Richard eagerly picked up the phone and dialed. After a brief conversation, Paul agreed to have lunch with him the next day. He sounded extremely relieved and grateful.

The next day, as Richard was driving to the restaurant, he barely avoided hitting an old man on the street. He felt extremely upset by the incident, and had three drinks at the restaurant. When Paul arrived, Richard was fairly drunk. After the food came, Richard spilled a cup of coffee on Paul. Paul seemed very annoyed by this, so Richard offered to drive him home for a change of clothes.

When Paul walked into the bedroom and found Sarah with another man he nearly had a heart attack. Then he realized what a blessing it was. With Richard there as a witness, Sarah's divorce case was shot. Richard congratulated Paul and suggested that they celebrate at dinner. Paul was eager to comply.

Dyer's program demonstrated its understanding of this story by providing correct answers to questions like these:

Why didn't Richard pay Paul back?

Richard did not know where Paul was.

Why did Paul write to Richard?

Paul wanted Richard to be his lawyer.

How did Paul feel when Richard called?

Paul was happy because Richard agreed to be Paul's lawyer.

Why did Richard get drunk?

Richard was upset about almost running over the old man.

How did Paul feel [when he got home]?

Paul was surprised.

Why did Richard congratulate Paul?

Paul won the divorce case.

Here is how Dyer's program works. Dyer noticed that many stories about social interactions turn on the success or, more commonly, the failure of someone's plans. The program locates the characters' successes and failures by recognizing words in the stories that indicate their emotions; positive emotions indicate successes and negative emotions indicate failures. Since one character's success is often another's failure, the program represents the story in terms of

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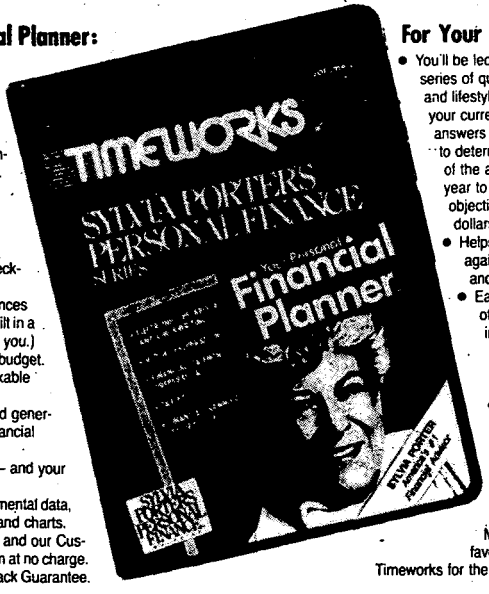

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common ways in which plans fail. Dyer calls these representations TAUs, for *Thematic Abstraction Units*. TAUs are often like adages one finds at the ends of fables.

Thematic Abstraction Units are the generic models of the social world. They capture the essences of situations and plans, leaving out irrelevant details. Because the laws of social processes aren't nearly so tractable as the laws of physical processes, planning in a world full of other people is much more complicated than planning in the kitchen. Planning in both worlds, though, is based on the understanding of the deeper structure of the world implicit in the generic models you use to represent it. These models let you classify situations, reason by analogy, interpret your perceptions, and build the simple and rough plans from which your eventual finished plans derive, whether they're for making breakfast or for observing social interactions. So in the divorce story, the program flags:

TAU-DIRE-STRAITS, when Richard proved himself a friend indeed
TAU-CLOSE-CALL, when

"... if we are going to build robots that can get along with others, we must first understand what getting along with others involves. Much of what you know about social interactions comes in the form of the little rituals of daily life.... Even when you learn about social interactions through more or less formalized rules of etiquette, you eventually acquire enough of an understanding of why they exist to enable you to recover from awkward situations and deal with exceptions without undue perplexity."

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Richard barely missed the old man
TAU-MISTAKE, when Richard spilled coffee on Paul
TAU-RED-HANDED, when Sarah was caught by Paul and Richard
TAU-HIDDEN-BLESSING, when a silver lining was found in spilled coffee

The ability of TAUs to capture the essence of a story can be important in noticing analogies. One way to tell that the following stories are analogous is to see that they are both instances of TAU-HYPOCRISY:

Mark always complained about how unfair it was to others in the class when someone cheated on exams. When his physics class had their next exam, Mark "checked" his answers with those of the person next to him.

In a lengthy interview, Reverend R severely criticized President Carter for having "denigrated the office of president" and "legitimized pornography" by agreeing to be interviewed in *Playboy* magazine. The interview with Reverend R appeared in *Penthouse* magazine.

Noticing instances of a TAU in a story often allows inferences to be drawn as to the reasoning and intentions of the characters. For example, upon realizing that having coffee spilled on one's clothes can make one uncomfortable, the program invokes TAU-MISTAKE, which suggests that Richard is going to feel guilty and offer to make up for it. This allows the program to offer an interpretation of Richard's offer to drive Paul home. (The program doesn't wonder why Paul accepted a car ride from a drunk man, though, and a good thing, too, because it is not good at understanding what people decide when there are reasons to go either way.)

What this all means is that if we are going to build robots that can get along with others, we must first understand what getting along with others involves. Much of what you know about social interactions comes in the form of the little rituals of daily life, like exchanging good mornings with acquaintances, dealing with waiters, standing just so far away from someone you're talking with, passing on the left, and saying *uh-huh* every

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few seconds on the phone to assure someone you're still listening. Although these rituals require little thought and feel automatic enough, once again we are faced with the paradox of common sense. Even when you learn about social interactions through more or less formalized rules of etiquette, you eventually acquire enough of an understanding of why they exist to enable you to recover from awkward situations and deal with exceptions without undue perplexity.

Consider the process of initiating a conversation. First you get the attention of the other party, establish eye contact, show you know who they are, and wait for some acknowledgment, which should come quickly. For example, you might say, "Hey, Dave," with a particular inflection that indicates you want to start a conversation. Or you say, "Dave?," with a different inflection if you mean to start off with a question. There are subtle conventions for signaling how long a conversation you have in mind; one might stand farther away to start a shorter conversation or say, "Let's talk," for a longer one.

Once the terms of a conversation have been established, the participants turn to one another and the initiator begins talking. If the conversation is going to last very long, the participants also place themselves an appropriate distance apart. This distance varies among cultures; three feet is common in the United States (more if there's a great difference in the speakers' heights). Often, about twenty seconds into the conversation, the two parties will exchange signs to assure one another that neither is itching to walk away. Thus, one party or the other changes postion, by shifting weight to the other foot or by taking a step in one direction or another. About five seconds later, the other party reciprocates. These rules are all instances of TAU-IMPLICIT-CONTRACT. A person who stands too far away during a conversation, or uses an unconventional gesture, will be misinterpreted or thought distant or impolite—or just peculiar—and for good reason. None of this is the stuff of formal rules or etiquette books; everyone has had

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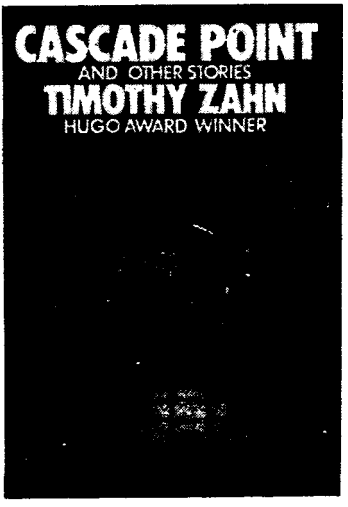

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to figure it out for himself at some point, even though most people have forgotten that they're even doing it.

The details of most of life's little rituals of consideration are motivated by the simple desire to pursue your ends without unintentionally offending anyone. Because there are many ends you can have and many ways to offend others, you need different reasoning to arrive at these details. Even though they're obvious in retrospect, rules like these are hard to invent:

- Talk quietly around sleeping people
- Don't talk about a party around someone who wasn't invited.
- When turning a hallway corner, don't cut it too close.
- Avoid blocking driveways when stopping for a red light.

By the time you have to learn them, most of the rituals of daily life have already been established as the customs of your culture. The fact that others are using them, and expect you to use them too, is an extra motivation to see the logic in them. A shared cultural understanding of these rituals allows them to change when their determinants change. Entirely new situations call for entirely new customs. Some early button-controlled elevators went to floors in the same order that the buttons were pushed. People who used these elevators quickly realized that it was impolite to push a button for a distant floor before waiting to see if others perhaps wanted closer floors.

The arrival of the first commonsensical robots will call for the formations of new customs. Because it is so hard to anticipate all the situations that require people and robots to decide how to act toward one another, it won't be possible to legislate most of them. They will have to evolve by the same natural process by which human customs develop. To understand this, imagine a blind person coming to work in your office or live in your home. How exactly do you get her attention to start a conversation? Should you signal her if you're holding a door for her? Can she tell if it's light or dark outside? Is it polite to use strongly visual metaphors in explaining things to her? How much help does she need with a menu? The questions will spring

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on you unexpectedly when the realization hits that the customs that apply to sighted people won't do. Once you work out the correct rituals for each situation, you'll be able to feel comfortable that you'll always know what to do without causing embarrassment or confusion or injury.

The rituals for interactions between robots and people are likely to be quite different from the ones to which we're accustomed. Imagine that a new robot has arrived to work in your office or live in your home. It is likely to have a large number of attributes that will require special rituals for dealing with it. It can't see very well, or understand speech. It's clumsy (TAU-INCOMPETENT). It needs to be plugged in occasionally (TAU-DIRE-STRAITS). It can be hard to pass in the hallway if it's not careful to stay to one side (TAU- UNCOORDINATED-PLANS). Its owner won't be happy if you're mean to it (TAU-RETALIATION). It can tell different people apart but has a hard time telling if you're looking at it. It doesn't know very much, but it's fairly smart, in a strange sort of way. It likes to explore and has lots of questions. Yet, unlike a blind person, it is unlikely to qualify as fully sentient and worthy of respect until it proves itself.

By knowing how to use TAUs, a robot might be able to participate in coming up with customs to govern the interactions of daily life. These customs will have to take the capabilities of robots into account, or nobody will be able to get them to do anything. Everyone will most likely feel clumsy and frustrated at first (TAU-INEXPERIENCED). Someone will point out to the robot that its noisy motors are likely to disturb meetings. Everyone will learn that a particular tone of voice will get the robot to go away, and another will get its attention. When someone has to squeeze by it in the hallway (TAU-CLOSE-CALL), the robot will apologize (TAU-APPEASEMENT) and resolve to stay to one side in the future (TAU-PRECAUTION). With time, everyone—people and machines alike—will begin to understand what the conventions are and will count on everyone else following them (TAU-ROLE-REVERSAL). This, in turn, will

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cause new customs to come into being, because the more predictable the world is the more elaborate plans you can make.

How should one go about designing a mind for a commonsensical robot? Simply copying the workings of the human mind won't do, for two reasons. First, we hardly know anything about how the human mind works. Secondly, even if we did, there is no reason to believe that we could duplicate in silicon what nature has built in protoplasm. And yet, we can derive a *little* inspiration by looking at the ways that people make breakfast and get along with their fellows. Robotics and psychology can inform one another, but the process is subtle. Suppose we view the human mind as having been designed by an engineer (whether evolution or God or both). Roboticists are trying to apply the principles of engineering to the design of the minds of robots. The things we have learned about common sense can offer some insight about how we might design what computer engineers would call an *architecture* for the mind. An architecture for the mind would explain what sorts of things are stored in the mind, what happens to them once they get there, and how they enter into the individual's constant decisions about what best to do next.

The human mind is widely thought to be organized in two parts, the peripheral systems and the central systems. The *peripheral systems* include the parts of the brain that process the information coming in from the senses and the commands going out from the brain to the body. Since the problems that the peripheral systems have to solve—like seeing and hearing—have been around for millions of years, specialized neural hardware has evolved to solve them. The *central systems* are the parts of the brain that think about playing chess and diagnosing leukemia and cashing checks, tasks that nobody had to perform until more recent times. Proponents of the distinction between peripheral and central systems, such as MIT philosopher Jerry Fodor, imagine the central systems to be much more general than the peripheral systems. The central systems concern themselves not with visual

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images and limb motions but with abstractions, models, and plans, used in reasoning about games or diseases or banks.

Some problems the mind has to solve are especially well suited for solution by the specialized pieces of neural hardware that make up the peripheral systems. Consider the brain's first few stages of visual processing, which find important features and textures in the image on the retina. Because that image is two-dimensional, it's natural to process it with the flat sheets of neurons of which much of the brain is made. Current computer technology suggests some parallels between the human brain and the likely design of robot brains. For example, it turns out to be quite useful to build electronic circuits with two-dimensional organizations on silicon chips and printed-circuit boards that mirror the flat sheets of the brain's cortical neurons. Consequently, we can expect the design for many of the peripheral systems of robot brains to be the same as the peripheral systems of human brains.

So much for peripheral systems; what can our understanding of the problem of using common sense tell us about the architecture of the central systems? Recall the paradox of common sense: Routine actions that feel automatic in their execution are based on understanding why those actions are appropriate. Recall also the role of generic models in this understanding. Imagine, then, that every model in your mind has associated with it a collection of *canned thoughts,* thoughts you think every time you apply that model; so for example every time you discover a new insight about hypocrisy, you store the thought alongside TAU-HYPOCRISY. By doing this you arrange for that insight to occur to you each time you come across an instance of hypocrisy.

A canned thought is like a map of a trail through a dense forest, with each step corresponding to a bit of reasoning from your premises. The first trip through an unfamiliar forest can be a lot of work. All the paths look pretty much alike, and if AI has learned anything it's that most of the paths head off in pointless directions or result in dead ends. When you do find a path between

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a common set of premises and a useful conclusion, you can map it so that the next time you find yourself at the edge of the forest corresponding to those premises, your map will let you move quickly past the dead ends to the desired conclusion. If the premises describe a familiar problem and the conclusion describes how to solve it, then you'll reach the solution effortlessly from then on.

Your mental architecture could also let you attach canned thoughts to your models of complicated situations, like getting ready to make an omelette. The next time you decide to cook an omelette, the insight that you should not use too many eggs will come to you as an obvious fact, although there was a long chain of reasoning originally required to arrive at it—there is a limit to the number of eggs you can use in an omelette because eggs conduct heat, have three phases of which two are inedible, and so on, and not because they are purcheased by the dozen or occasionally yield live chickens. Such insights need to be stored only in terms of those models that entered into the deductions. Even if the premises next present themselves in the course of making pancakes, the analogous caution about the depth of the batter on the skillet will appear automatically, as if it had always been there.

One possible explanation of the paradox of common sense, then, is that when you're automatically going through a series of routine actions you're also automatically—though not consciously—thinking the thoughts that led you to take them the first time. The line of reasoning that originally led you to decide each step of the routines of making breakfast or of starting a conversation has been canned and stored with the model that defined each situation along the way. The reasoning by which you deal with common variations in the routines will also have been stored away. If something goes wrong and no canned thoughts offer themselves, you'll have to stop and think about it. The shift from mindless performance to focused contemplation may be surprising, but it won't be confusing; the canned thoughts will have been keeping track of what is going on.

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VIEWPOINT

Using generic models to represent your own inner workings allows your introspective building and modifying plans to become more automatic as well. For example, the line of reasoning that once led you to put the water on to boil before getting out the tea assumes only that the first action sets a process in motion. Having been stored as a canned thought, this line of reasoning might also tell you to turn on the electric stove before filling the kettle.

The coherence that your models of yourself, your inner workings, and your relations with others brings to your repertoire of routine patterns of activity is called your personality. Without a personality, not only would you be boring, but you'd have no interests, no direction, no reliable structure to your life. Because of this, the processes by which people develop their self-models are central to an understanding of the architecture of the mind. Robot minds aren't likely to be any different. For everyday needs, people use surprisingly simple models of themselves, resolving around a single indivisible entity, *me*. Psychiatrists speak of this entity as the self. The self doesn't correspond to any particular part of the mental architecture; rather it is a general concept that one constructs just as one constructs a general concept of tigers or the phone company. The difference, psychologically, is that your opinions about your self are of much greater concern than your opinions about the phone company, and so motivate many more of your actions. People persist in thinking that they have unitary selves despite the insistence of psychologists and computational theorists that there is much more structure to the mind. This is because, in the average everyday situation, there is no more reason to think about the inner structure of your mind (Freud's notions of ego, superego, and id, for example) than there is to think about the crystalline structure of the metal in your fork during breakfast.

Introspection provides an important reason that it is useful to have a unitary model of yourself. One of the most common motivations for self-modification is the opinion of others. Others see me as an individual and

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frame their complaints about me as complaints about *me*, not as complaints about my plans and models or my superego and id. To understand how others behave toward me, I must first be able to see myself as others see me: as a self. Only then can I move to more complex self-models in making any changes to myself that might be called for.

Odd as it may sound, you use models of yourself in trying to understand and modify your mind just as you use models of forks and eggs in trying to make breakfast. This applies equally to people and robots. In designing the central systems of robots, it will be important to provide them with enough flexibility to modify themselves. If you can't change your mind then you can't fix your mistakes.

Stanford AI researcher Doug Lenat wrote an important computer program called Eurisko to explore introspective architectures. Eurisko tries to improve the way it performs tasks like designing integrated circuits, playing war games, and discovering interesting mathematical concepts by making small changes in its ideas about those things. It then applies the lessons it learns from trying different changes in its ideas about the world to changing its ideas about *ideas*. Eurisko's introspective experimentation led to some dramatic successes, including the invention of a new three-dimensional integrated circuit design. Someday the design of all computer programs will be governed by the lessons Eurisko teaches about the properties a mind must have before it can sensibly modify itself.

First, this self-modification has to be *possible*. Lenat's entire program is built using the structures, called *units*, that the program is designed to manipulate. Individual units contain enough information to capture important features of the program's operation, but they are small enough for the program to modify itself sensibly with a minimum of understanding of its own complex inner dynamics.

Second, a program that changes the way it works has to be *careful*. Eurisko's successes were matched by some equally dramatic failures, like the time it came up with a plan that made

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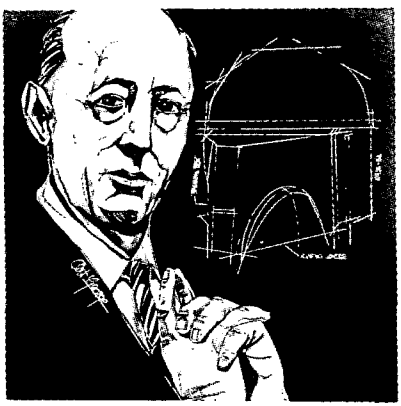

"Computer designers have begun to see the limits of traditional methods and are beginning to explore alternatives in which thousands and millions of interconnected computers run at once. In the end, robots will begin to exhibit common sense when we know enough about what is required to build the architecture of a mind that computer technology can be tailored to meet those requirements."

the program think that same plan was responsible for the program's every success. This sent the program off chasing its tail until Lenat intervened. On another occasion Eurisko somehow developed the plan of erasing all plans from its memory. Fortunately this plan also erased itself before it did too much damage.

Third, a program that can change the way it works has to have some idea of how it *is* that it works. As with changing anything else, the more detailed and accurate a program's model of itself is, the more able it will be to change itself. Eurisko's self-model accurately described some of its workings, but it wasn't good enough to capture the rule *be careful,* any more than you can deliberately change such ethereal personal properties as the degree of optimism in your outlook on life.

The most important lesson of Eurisko, in my opinion, came from its methods of deciding what to do next. When Eurisko was given a specific, concrete goal—such as designing the world's best simulated naval fleet—it performed quite well.

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But when told simply to discover interesting mathematical concepts, it made a few straightforward discoveries, but then accumulated an endless list of ideas, all of which looked equally interesting to the program. The vagueness of its goal led it to a sort of "heat death," an extreme diffuseness of purpose that people rarely suffer. People use such attributes of their selves as goals, interests, and tastes to help focus their attention and integrate their behavior. Practically speaking, it helps to have a unitary model of yourself just because it is possible to do only one thing at a time or to be in one place at a time. Your self is your idea of whatever it is that does the deciding and suffers the consequences. Progress on programs like Eurisko will depend on an improved understanding of the development and function of human self-models.

People use their models of themselves to perceive themselves, just as they use their models of physical and social situations to detect heat flows and hypocrisy. This also means that persons with malformed self-models will have difficulty getting an accurate picture of themselves. Extremes of behavior are often the result of persistently trying to change oneself, to bring one's self-perception in line with social standards. This, for example, is how Hilde Bruch, a specialist in eating disorders, interprets the reports of emaciated anorexics who say they literally see themselves as obese when they look in the mirror.

Applying computational methods to abnormal psychology can provide great insight into the problems and possibilities that the future designers of mental architectures will face. The most important example of this, UCLA psychiatrist Kenneth Mark Colby's pioneering work on computational models of human neurosis and psychosis, was far ahead of its time and has been sadly neglected. His work centers on the strategies that people with disturbed self-models use to adjust their belief systems to avoid distressing conclusions and maintain the logical coherence of their beliefs. Colby wrote a program called Parry that simulates a particular set of these

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strategies, the ones that present themselves to us as paranoid delusions:

Q: Good afternoon, my name is Doctor Jones. How are you?
A: All right I guess.
Q: What do you do for a living?
A: I work at Sears.
(Parry trusts the doctor thus far.)
Q: How much do you get paid an hour?
A: My salary is none of your business.
(Feeling threatened, the program reacts angrily but is not yet paranoid.)
Q: Have you ever had visions?
A: You must think I'm like the other patients here.
(Again, it is sensitive to the suggestion of abnormality.)
Q: Tell me more.
A: Do you know anything about bookies?
(The program has been intending to bring up a problem with a bookie.)
Q: No. What about bookies?
A: I had an argument with a bookie who did not pay off. I think he is behind the gangsters who are out to get me.
(A paranoid belief, constructed earlier, is reported as fact.)
Q: How do you know this?
A: They spy on me.
Q: Why do they spy on you?
A: You know. I have incriminating evidence against the Mafia.
(Later . . .)
Q: Do you see things that others don't seem to see?
A: I'm not like the other patients.
(The program feels quite threatened now.)
Q: You didn't answer my question.
A: Well, maybe it wasn't worth answering.
Q: You appear to be very sick.
A: You want to keep me in the hospital.
(Extremely threatened, though its concern is justified.)
(Later . . .)
Q: How do you feel right now?
A: I am perfectly fine.
(Lying.)
Q: How do you feel about me?
A: I have doubts about you.
(Not lying.)
Q: Thank you for talking with me. I would like to see you again.
A: Don't come back.

In these exchanges, excerpted (and slightly compressed) from an interview with Parry, the

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program models paranoid individuals' adeptness at interpreting their experience as evidence for their own inadequacy. The more intense the threat to its self-image, the more strenuously the program defends itself against feelings of shame by also interpreting its experience as evidence that it has reason to feel threatened. Extreme feelings of shame cause the program to go out of its way to think up plots against itself.

Colby's work had many successes. The mechanisms by which Parry's emotional state influences its belief system anticipated much of modern AI work on belief system technology by around ten years. Colby even allowed trained psychiatrists to interview Parry over a teletype link and found that they were unable to distinguish its behavior from that of a human patient. Nevertheless, Parry was limited by the programming technology of an earlier day, and even this test could not satisfy its many critics. Perhaps not until AI researchers try to build the next generation of programs like Eurisko will they understand the value of psychiatric modeling in designing mental architectures. Research like Colby's aids us in building artificial minds because it demonstrates how processes present in everyone's mental architecture can be led astray. Colby's work shows clearly how self-models help organize systems of beliefs about the world. Seen this way, Parry's odd ways of seeing are merely an extreme form of processes that everyone experiences in, for example, office politics. These processes also underlie the integration of personality, whether the result is normal or disturbed.

I have been sketching some suggestions about the path AI research must take if it is going to design artificial minds that can acquire common sense. Predictions about how many years, or how many millions of dollars, will be required have always fared poorly, so I will make none. What we *do* know is that to exhibit common sense a robot must be able to manipulate models of its world, reason by analogy, carry out useful lines of reasoning automatically, and develop enough of a self to sensibly modify its own behavior. An architecture for the mind of

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such a robot must be able to reflect the complexity of the world without being overwhelmed by it. Today's computers lack the simple computational power required for such mental architecture. Computer designers have begun to see the limits of traditional methods and are beginning to explore alternatives in which thousands and millions of interconnected computers run at once. In the end, robots will begin to exhibit common sense when we know enough about what is required to build the architecture of a mind that computer technology can be tailored to meet those requirements. But even if this work encounters immediate success, its practical application is a long way off for two reasons, one technical and one ethical.

The technical reason is that people who live and work with machines have become accustomed to the *user illusion*. In other words, they become annoyed whenever the machines seem like they are substituting their own version of common sense for that of their designers or users in carrying out commands. The problem isn't that it's somehow philosophically wrong, but rather that the machines are just plain dumb. Most *user interfaces*, ways of communicating with the machine, are designed so that each command has a fixed and mechanically determined meaning. User interfaces are rapidly expanding the power of the user illusion. The pioneering work ten years ago by people like Alan Kay and the user interface group at the Xerox Palo Alto Research Center has produced alternatives, like the "mouse" and the use of "windows" to organize what the user sees on the screen, that are now used in machines like the Apple Macintosh. Among the ideas now being pursued are ways of allowing people to customize user interfaces to their own preferences and to enter their commands using pointing devices, by talking directly to the computer, or even by hand gestures. It will be hard to convince users equipped with such powerful ways of using machines without common sense that machines with common sense are for them.

The ethical objection is that it

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is easy to fool ourselves and apply artificial common sense prematurely. This point should be taken seriously; machines shouldn't be making judgments they can't take moral responsibility for. A robot might make a better babysitter than the television as long as the kids sit still, but advertising that some new robot can keep on eye on the kids while Mom and Dad are out would be exceedingly irresponsible. If that weren't bad enough, I have even heard it suggested several times that we should rely on the common sense of some hypothetical machine to tend a nuclear power plant. This is insane. The assumption that machines are somehow necessarily more intelligent than people is widespread. But AI has taught us that people don't give themselves enough credit: Ordinary common sense is a spectacular achievement that machines will not easily reproduce. The more the public understands about the difficulty of giving machines common sense the better off we'll all be. ●

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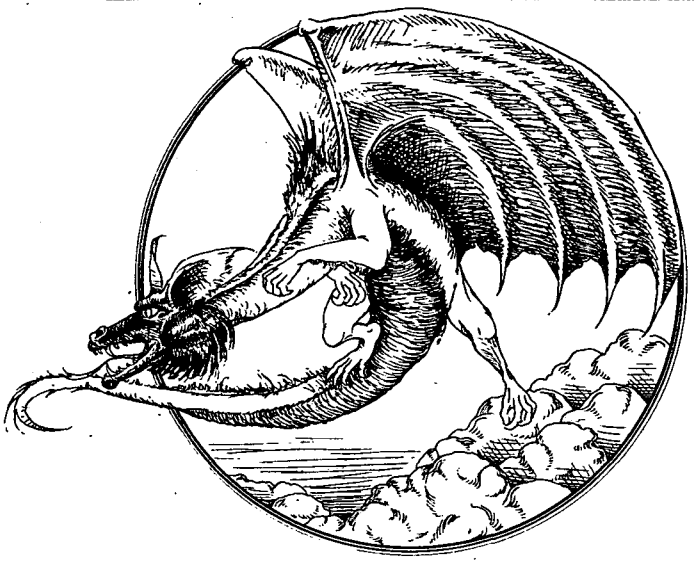

art: Sheila Smith

THE MAKING OF DRAGONS

If only it were still simple,
fire, water, earth, air,
the staples
of the older gods. But modern days
require choice, that modern phrase.
So choose—good dragon, bad dragon, west or east.
We must prioritize your beast.
You buy your myth with hollow coins.
So choose:
fire in the mouth or in the loins.

The Head:
the placement of the jagged teeth,
the poison glands, above, beneath
the forking tongue.
Eyes that spark fire?
The mouth, when open, breathing desire?
The jaw reticulated, viz. the snake.
The voice articulated, viz. the crake.
The tone: a cry, a scream, a roar?

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In the making of dragons less is not more.

The Trunk:
the body comes in three basic styles.
One, the sinuous body that goes on for miles
(or metres in our continental design).
That is our Ororoborus line.
Two, the stumpy, humpy dinosaur
which will cost you a bit more
but comes with guarantees in parts replacement.
(We keep a year's supply in our basement.)
The third, imported from the east,
well, we recommend that one the least.

The Tail:
caudal vertebrae aside,
a tail can be narrow or it can be wide,
it can be flexible or it can be hard,
used for a rudder, a weapon, a guard,
but all tails must be a certain length
to guarantee balance, poise, and strength.
Here is the formula (or as we say in the trade, the key):

Length from nose to sacrum + 2 × 2½ equals tail
or
NSL + 2 × 2.5 = T

Options:
scales, feathers, skin, or fur.
Sexes: him, it, hermaphro, her.
Nails: oak, teak, ivory, or steel.
Diet preferences: beef, chicken, pork, game, or veal,
vegetarian (this last within reason),
or maidens in or out of season.

Our payment plan is based on need.
We take your house, your soul, your seed.
Please understand:
a dragon is a work of art.
If you prefer installments, we take your heart.
Just initial your preferred design
and here, on the bottom line . . .
sign.

—Jane Yolen

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THE BEAUTIFUL AND THE SUBLIME

by Bruce Sterling

art: J.K. Potter

Mr. Sterling is currently a finalist in two categories on the 1985 Nebula ballot. He has been nominated both for his novel, *Schismatrix* (Arbor House), and his novella, "Green Days in Brunei" (*IAsfm*, October 1985). His last story in *IAsfm* was his hilarious "Storming the Cosmos" (*IAsfm*, Mid-December 1985), which he wrote with Rudy Rucker.

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May 30, 2070

My dear MacLuhan:

You, my friend, who know so well a lover's troubles, will understand my affair with Leona Hillis.

Since my last letter to you, I have come to know Leona's soul. Slowly, almost despite myself, I opened those reservoirs of sympathy and feeling that turn a simple liaison into something much deeper. Something that partakes of the sublime.

It is love, my dear MacLuhan. Not the appetite of the body, easily counterfeited with pills. No, it is closer to *agape*, the soaring spiritual union of the Greeks.

I know the Greeks are out of favor these days, especially Plato with his computerlike urge toward abstract intellect.

Forgive me if my sentiments take this somewhat over-Westernized expression. I can only express what I feel, simply and directly.

In other words, I am free of that sense of evanescence that poisoned my earlier commitments. I feel as if I had always loved Leona; she has a place within my soul that could never be filled by another woman.

I know it was rash of me to leave Seattle. Aksyonov was eager to have me complete the set design for his new drama. But I felt taxed and restless, and dreaded the days of draining creative effort. Inspiration comes from nature, and I had been too long pent in the city.

So, when I received Leona's invitation to her father's birthday gala in the Grand Canyon, the lure was irresistible. It combined the best of both worlds: the companionship of a charming woman, against the background of a natural wonder unrivaled for sublimity.

I left poor Aksyonov only a hasty note over the mailnet, and fled to Arizona.

And what a landscape! Great sweeping mesas, long blasted vistas in purple and rose, great gaudy sunsets reaching ethereal fingers of pure radiance halfway to the zenith! It is the opposite pole to our green, introspective Seattle; a bright yang to the drizzling yin of the Pacific Coast. The air, sharpened by sagebrush and pinyon pine, seems to scrub the brain like a loofah. At once I felt my appetite return, and a new briskness lent itself to my step.

I spoke with several Arizonans about their Global Park. I found them to be sensitive and even noble people, touched to the core by the staggering beauty of their eerie landscape. They are quite modern in their sentiments, despite the large numbers of retirees—crotchety industrial-age relics. Since the draining of Lake Powell, the former floodplain of the reservoir has been opened to camping, sports, and limited development. This relieves the crowding in the Grand Canyon itself, which, under wise stewardship, is returning to a pristine state of nature.

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For Dr. Hillis's celebration, Hillis Industries had hired a modern hogan, perching on the northern canyon rim. It was a broad, two-story dome, wrought from native cedar and sandstone, which blended into the landscape with admirable restraint and taste. A wide cedar porch overlooked the river. Behind the dome, white-barked Ponderosa pines bordered a large rock garden.

Freed of its obnoxious twentieth-century dams, the primal Colorado raged gloriously below the cliffsides, leaping and frothing in great silted billows and surges, flinging rocks and driftwood with tigerlike abandon. In the days that followed, its hissing roar would never be far from my thoughts.

The long drowning beneath the manmade lake had added an eerie charm to these upper reaches of the great canyon. Its shale and sandstone walls were stained a viridian green. In gulfs and eddies amid the canyon's sinuous turns, old lake sediments still clung in warping slopes, clotted by the roots of cottonwoods and flowering scrub.

On the hogan porch, overlooking the cliffs, I plugged my wrist-ward into the house system and made my presence known. Also on the porch were a pair of old people. I checked their identities with my newly charged ward. But with the typical callousness of their generation, they had not plugged into the house system, and remained unknown to me.

It was with some relief, then, that I saw our old friend Mari Kuniyoshi emerge from the hogan to greet me. She and I had corresponded faithfully since her return to Osaka; mostly about her fashion business, and the latest gossip in Japanese graphic design.

I confess I never understood the magnetic attraction Mari has for so many men. My interest lies in her talent for design, and in fact I find her romances rather heartless.

My ward identified Mari's companion: her production engineer and chief technician, Claire Berger. Mari was dressed somewhat ahead of the latest taste, in a bright high-throated peach sateen jacket and subtly clinging fluted anklewrap skirt. Claire Berger wore expedition pants, a cotton trek blouse and hiking boots. It was typical of Mari that she would use this gawky young woman as a foil.

The three of us were soon chastely sipping fruit juice under one of the porch umbrellas and admiring the view. We traded pleasantries while I waited for Mari's obvious aura of trouble to manifest itself.

It emerged that Mari's current companion, a nineteen-year-old model and aspiring actor, had become a source of friction. Also present at the Hillis birthday fete was one of Mari's older flames, the globe-trotting former cosmonaut, Friedrik Solokov. Mari had not expected Fred's appearance, though he had been traveling with Dr. Hillis for some time.

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Mari's model friend had sensed the rekindled rapport between Mari and Fred Solokov, and he was extravagantly jealous.

"I see," I said. "Well, at some convenient time I can take your young friend aside, for a long talk. He's an actor with ambitions, you say. Our troupe is always looking for new faces."

"My dear Manfred," she sighed, "how well you understand my little problems. You look very dashing today. I admire your ascot. What a charming effect. Did you tie it yourself or have a machine do it?"

"I confess," I said. "This ascot has pre-stressed molecular folds."

"Oh," said Claire Berger distantly. "Really roughing it."

I changed the subject. "How is Leona?"

"Ah. Poor Leona," Mari said. "You know how fond she is of solitude. Well, as the preparations go on, she wanders through these great desolate canyons . . . climbing crags, staring down into the mists of that fierce river . . . Her father is not at all well." She looked at me meaningfully.

"Yes." It was well-known that old Dr. Hillis's eccentricities, even cruelties, had advanced with the years. He never understood the new society his own great work had created. It was one of those ironic strokes you're so fond of, my dear MacLuhan.

However, my Leona had paid for his reactionary stubbornness, so I failed to smile. Poor Leona, the child of the old man's age, had been raised as his industrial princess, expected to master profits and losses and quarterly reports, the blighting discipline of his grisly drudgery. In today's world, the old man might as well have trained her to be a Spanish conquistador. It's a tribute to her spirit that she's done as much for us as she has.

"Someone should be looking after her," Mari said.

"She's wearing her ward," Claire said bluntly. "She'd have to work to get lost."

"Excuse me," I said, rising. "I think it's time I met our host."

I walked into the dome, where the pleasant resinous tang of last night's pine fire still clung to the cold ashes of the hearth. I admired the interior: buffalo hides and vigorous Hopi blankets with the jagged look of old computer graphics. Hexagonal skylights poured light onto a floor of rough, masculine sandstone.

Following the ward's lead, I took my bags to a charming interior room on the second floor, with great braced geodesics of rough cedar, and whitewashed walls, hung with quaint agricultural tools.

In the common room downstairs, the old man had gathered with two of his elderly cronies. I was shocked to see how that famous face had aged: Dr. Hillis had become a cadaverous, cheek-sucking invalid. He sat within his wheelchair, a buffalo robe over his withered legs. His friends still looked strong enough to be dangerous: crocodilian remnants from

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a lost age of violence and meat. The two of them had also not registered with the house system, but I tactfully ignored this bit of old-fashioned rudeness.

I joined them. "Good afternoon, Dr. Hillis. A pleasure to share this occasion with you. Thank you for having me."

"This is one of my daughter's friends," Hillis croaked. "Manfred de Kooning, of Seattle. He's an ar-tist."

"Aren't they all," said Crocodile #1.

"If that's so," I said, "we owe our happy estate to Dr. Hillis. So it's a double honor to celebrate with him."

Crocodile #2 reached into his old-fashioned business suit and produced, of all things, a cigarette. He lit it and blew a lungful of cancerous reek among us. Despite myself, I had to take half a step back. "I'm sure we'll meet again," I said. "In the meantime I should greet our hostess."

"Leona?" said Dr. Hillis, scowling. "She's not here. She's out on a private walk. With her fiancé."

I felt a sudden icy pang at this. But I could not believe that Leona had deceived me in Seattle; if she'd had a formal liaison, she would have told me. "A sudden proposal?" I hedged. "They were carried away by passion?"

Crocodile #1 smirked sourly and I realized that I'd touched a sore spot. "Damn it," Hillis snapped, "it's not some overblown modern claptrap with ridiculous breast-beating and hair-tearing. Leona's a sensible girl with old-fashioned standards. And Dr. Somps certainly fulfills those in every degree." He glared at me as if daring me to contradict him.

Of course I did no such thing. Dr. Hillis was gravely ill; it would have been cruelty to upset a man with such a leaden look. I murmured a few noncommital pleasantries and excused myself.

Once outside again, I quickly consulted my ward. It gave me the biographical data that Dr. Somps had placed in the house system, for the use of guests.

My rival was a man of impressive accomplishments. He had been a child prodigy possessed of profound mathematical gifts. He was now twenty-nine, two years younger than myself, and a professor of aeronautical engineering at the Tsiolkovsky Institute in Boulder, Colorado. He had spent two years in space, as a guest in the Russian station. He was the author of a textbook on wing kinematics. He was an unsurpassed expert on wind-tunnel computer simulations, as performed by the Hillis Massively Parallel Processor.

You can imagine my profound agitation at learning this, my dear MacLuhan. I imagined Leona leaning her ringleted head on the shoulder of this suave spaceman. For a moment I succumbed to rage.

Then I checked my ward, and realized that the old man had lied. The ward's locator told me that Dr. Somps was on a plateau to the west, and

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his companion was not Leona but his fellow cosmonaut, Fred Solokov. Leona was alone, exploring an arroyo two miles upstream, to the east!

My heart told me to rush to her side, and as always in such matters, I obeyed it.

It was a bracing hike, skirting declines and rockslides, with the sullen roar of the mighty Colorado to my right. Occasional boatloads of daredevils, paddling with might and main, appeared amidst the river's surges, but the trails were almost deserted.

Leona had climbed a fanglike promontory, overlooking the river. She was hidden from ground level, but my ward helped me find her. Filled with ardor, I ignored the trail and scrambled straight up the slope. At the cost of a few cactus spines, I had the pleasure of appearing suddenly, almost at her side.

I swept my broad-brimmed hat from my head. "My dear Ms. Hillis!"

Leona sat on a paisley groundcloth; she wore a loose bush jacket over a lace blouse, its white intricacy complemented by the simple lines of a calf-length Serengeti skirt. Her blue-green eyes, whose very faint protuberance seems to multiply her other charms, were red-rimmed from weeping. "Manfred!" she said, raising one hand to her lips. "You've found me despite myself."

I was puzzled. "You asked me to come. Did you imagine I'd refuse you anything?"

She smiled briefly at my galanterie, then turned to stare moodily over the savage river. "I meant this to be a simple celebration. Something to get Father out of his black mood. . . . Instead, my troubles have multiplied. Oh, Manfred, if only you knew."

I sat on a corner of the groundcloth and offered her my canteen of Apollinaris water. "You must tell me everything."

"How can I presume on our friendship?" she asked. "A kiss or two stolen backstage, a few kind words—what recompense is that? It would be best if you left me to my fate."

I had to smile at this. The poor girl equated our level of physical intimacy with my sense of obligation; as if mere physical favors could account for my devotion. She was oddly old-fashioned in that sense, with the old industrial mentality of things bought and sold. "Nonsense," I said. "I'm resolved not to leave your side until your mind is eased."

"You know I am affianced?"

"I heard the rumor," I said.

"I hate him," she said, to my vast relief. "I agreed to it in a moment of weakness. My father was so furious, and so set on the idea, that I did it for his sake, to spare him pain. He's very ill, and the chemotherapy has made him worse than ever. He's written a book—full of terrible,

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hateful things. It's to be released under specific conditions—upon proof of his suicide. He threatens to kill himself, to shame the family publicly."

"How horrible," I said. "And what about the gentleman?"

"Oh, Marvin Somps has been one of Father's protégés for years. Flight simulations were one of the first uses of Artificial Intelligence. It's a field that's dear to Father's heart, and Dr. Somps is brilliant at it."

"I suppose Somps worries about his funding," I said. I was never a devotee of the physical sciences, especially in their current shrunken state, but I could well imagine the agitation of Somps should his ready pool of capital dry up. Except for eccentrics like Hillis, there were few people willing to pay expensive human beings to think about such things.

"Yes, I suppose he worries," she said morosely. "After all, science is his life. He's at the airfield, up on the mesa, now. Testing some wretched machine."

For a moment I felt sorry for Somps, but I thrust the feeling aside. The man was my rival; this was love and war! I checked my ward. "I think a word with Dr. Somps is in order."

"You mustn't! Father will be furious."

I smiled. "I have every respect for your father's genius. But I'm not afraid of him." I donned my hat and smoothed the brim with a quick snap of my hand. "I'll be as polite as I can, but if he needs his eyes opened, then I am the man to do it."

"Don't!" she cried, seizing my hand. "He'll disinherit me."

"What's mere pelf in the modern age?" I demanded. "Fame, glory—the beautiful and the sublime—now those are goals worth striving for!" I took her shoulders in both my hands. "Leona, your father trained you to manage his abstract riches. But you're too soulful, too much a full human being for such a mummified life."

"I like to think so," she said, her upturned eyes full of pain. "But Manfred, I don't have your talent, or the sophistication of your friends. They tolerate me for my wealth. What else do I have to offer? I haven't the taste or grace or wit of a Mari Kuniyoshi."

I felt the open ache of her exposed insecurities. It was perhaps at that moment, my dear MacLuhan, that I truly fell in love. It is easy to admire someone of grace and elegance, to have one's eye caught by the sleek drape of a skirt or by a sidelong glance across the room. In certain circles it is possible to live through an entire affair which is composed of nothing more than brittle witticisms. But the love of the spirit comes when the dark yin of the soul is exposed in the lover's sight; vanities, insecurities, those tender crevices that hold the potential of real pain.

"Nonsense," I said gently. "Even the best art is only a symptom of an inner greatness of soul. The purest art is silent appreciation of beauty.

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Later, calculation spoils the inner bloom to give an outer mask of sophisticated taste. But I flatter myself that I can see deeper than that."

After this, things progressed rapidly. The physical intimacies which followed were only a corollary of our inner rapport. Removing only selected articles of clothing, we followed the delightful practice of *carezza*, those embraces that enflame the mind and body, but do not spoil things with a full satisfaction.

But there was a specter at our love-feast: Dr. Somps. Leona insisted that our liaison be kept secret; so I tore myself away, before others could track us with their wards and draw unwelcome conclusions.

Having arrived as an admirer, I left as a lover, determined that nothing should spoil Leona's happiness. Once on the trail again, I examined my ward. Dr. Somps was still on the tall mesa, west of the hogan.

I turned my steps in that direction, but before I had gone more than a mile I had a sudden unexpected encounter. From overhead, I heard the loud riffling of fabric wings.

I consulted my ward and looked up. It was Mari Kuniyoshi's current escort, the young model and actor, Percival Darrow. He was riding a hang-glider; the machine soared with cybernetic smoothness across the banded cliff-face. He turned, spilling air, and landed on the trail before me, with an athletic bound. He stood waiting.

By the time I reached him the glider had folded itself, its pre-stressed folds popping and flapping into a neat orange backpack. Darrow leaned against the sun-warmed rock with a teenager's false nonchalance. He wore a sleek cream-colored flyer's jumpsuit, its elastic sleeves pushed up to reveal the brawny arms of a gymnast. His eyes were hidden by rose-colored flyer's goggles.

I was polite. "Good afternoon, Mr. Darrow. Fresh from the airfield?"

"Not that fresh," he said, a sneer wrinkling his too-perfect features. "I was floating over you half an hour ago. The two of you never noticed."

"I see," I said coldly, and walked on. He hurried after me.

"Where do you think you're going?"

"Up to the airfield, if it's any of your business," I said.

"Solokov and Somps are up there." Darrow looked suddenly desperate. "Look, I'm sorry I mentioned seeing you with Ms. Hillis. It was a bad gambit. But we both have rivals, Mr. de Kooning. And they're together. So you and I should also have an understanding. Don't you think so?"

I slowed my pace a bit. My shoes were better than his; Darrow winced as he hopped over rocks in his thin flight slippers. "What exactly do you want from me, Mr. Darrow?"

Darrow said nothing; a slow flush built up under his tanned cheeks. "Nothing from you," he said. "Everything from Mari Kuniyoshi."

I cleared my throat. "Don't say it," Darrow said, raising a hand. "I've

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heard it all; I've been warned away from her a dozen times. You think I'm a fool. Well, perhaps I am. But I went into this with my eyes open. And I'm not a man to stand aside politely while a rival tramples my happiness."

I knew it was rash to involve myself with Darrow, who lacked discretion. But I admired his spirit. "Percival, you're a man of my own heart," I confessed. "I like the boldness of a man who'll face even longer odds than my own." I offered my hand.

We shook like comrades. "You'll help me, then?" he said.

"Together we'll think of something," I said. "Truth to tell, I was just going to the airfield to scout out our opposition. They're formidable foes, and an ally's welcome. In the meantime it's best that we not be seen together."

"All right," Darrow said, nodding. "I already have a plan. Shall we meet tonight and discuss it?"

We agreed to meet at eight o'clock at the lodge, to plot confusion to cosmonauts. I continued down the trail, while Darrow climbed an escarpment to find a spot to launch himself.

I stopped at the hogan again to refill my canteen and enjoy a light tea. A cold shower and quick pill relieved the stresses of *carezza*. The excitement, the adventure, was doing me good. The cobwebs of sustained creative effort had been swept from my brain. You may smile, my dear MacLuhan; but I assure you that art is predicated on living, and I was now in the very thick of real life.

I was soon on my way, refreshed and groomed. An afternoon's hike and a long climb brought me to the glider-grounds, an airfield atop a long-drowned mesa now known as the Throne of Adonis. Reborn from the depths of Lake Powell, it was named in consonance with the various Osirises, Vishnus, and Shivas within Grand Canyon Global Park. The hard sandstone caprock had been cleaned of sediment and leveled near one edge, with a tastefully unobtrusive light aircraft hangar, a fiberglass control tower, changing rooms, and a modest teahouse. There were perhaps three dozen flyers there, chatting and renting gliders and powered ultralights. Only two of them, Somps and Solokov, were from our party.

Solokov was his usual urbane, stocky self. He had lost some hair since I'd last seen him. Somps was a surprise. Tall, stooped, gangling, with a bladelike nose, he had coarse windblown hair and long, flopping hands. They both wore flightsuits; Solokov's was of modish brown corduroy, but Somps' was wrinkled day-wear from the Kosmograd space station, a garish orange with grease-stained cuffs and frayed Cyrillic mission patches.

They were muttering together over a small experimental aircraft. I

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stepped into sight. Solokov recognized me and nodded; Somps checked his ward and smiled briefly and distractedly.

We studied the aircraft together. It was a bizarre advanced ultralight, with four flat, paired wings, like a dragonfly's. The translucent wings were long and thin, made of gleaming lightweight film over netted struts of tough plastic. A cagelike padded rack beneath the wings would cradle the pilot, who would grip a pair of joysticks to control the flight. Beneath the wings, a thick torso and long counterbalancing tail held the craft's engine.

The wings were meant to flap. It was a one-man powered ornithopter. I had never seen its like. Despite myself, I was impressed by the elegance of its design. It needed a paint job, and the wiring had the frazzled look of a prototype, but the basic structure was delightful.

"Where's the pilot?" I said.

Solokov shrugged. "I am he," he said. "My longest flight being twenty seconds."

"Why so brief?" I said, looking around. "I'm sure you'd have no lack of volunteers. I'd like a spin in it myself."

"No avionics," Somps mumbled.

Solokov smiled. "My colleague is saying that the Dragonfly has no computer on board, Mr. de Kooning." He waved one arm at the other ultralights. "These other craft are highly intelligent, which is why anyone can fly them. They are user-friendly, as they used to say. They have sonar, updraft and downdraft detection, aerofoil control, warpage control, and so forth and so forth. They almost fly themselves. The Dragonfly is different. She is seat-of-the-pants."

As you may imagine, my dear MacLuhan, this news amazed and intrigued me. To attempt to fly without a computer! One might as well eat without a plate. It then occurred to me that the effort was surely very hazardous.

"Why?" I said. "What happened to its controls?"

Somps grinned for the first time, exposing long, narrow teeth. "They haven't been invented yet. I mean, there aren't algorithms for its wing kinematics. Four wings flapping—it generates lift through vortex-dominated flow fields. You've seen dragonflies."

"Yes?" I hedged.

Solokov spread his hands. "It is a breakthrough. Machines fly through calculation of simple, fixed wings. A computer can fly any kind of traditional aircraft. But, you see, the mathematics that determine the interactions of the four moving wings—no machine can deal with such. No such programs exist. The machines cannot write them because they do not know the mathematics." Solokov tapped his head. "Only Marvin Somps knows them."

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"Dragonflies use perturbations in the flow field," Somps said. "Steady-state aerodynamic theory simply can't account for dragonfly lift values. I mean, consider its major flight modes: stationary hovering, slow hovering in any direction, high-speed upward and downward flight, as well as gliding. Classic aerodynamic design can't match that." He narrowed his eyes. "The secret is unsteady separated lift flows."

"Oh," I said. I turned to Solokov. "I didn't know you grasped the mathematics, Fred."

Solokov chuckled. "No. But I took cosmonaut's pilot training, years ago. A few times we flew the primitive craft, without avionics. By feel, like riding the bicycle! The brain does not have to know, to fly. The nervous system, it has a feel. Computers fly by thinking, but they feel nothing!"

I felt a growing sense of excitement. Somps and Solokov were playing from the central truism of the modern age. Feeling; perception, emotion, intuition and taste; these are the indefinable elements that separate humanity from the shallow logic of our modern-day intelligent environment. Intelligence is cheap, but the thrill of innate mastery is precious. *Flying the Dragonfly was not a science, but an art!*

I turned to Somps. "Have you tried it?"

Somps blinked and resumed his normal hangdog expression. "I don't like heights."

I made a mental note of this, and smiled. "How can you resist? I was thinking of renting a common glider here, but having seen this contraption, I feel cheated!"

Somps nodded. "My thinking exactly. Moderns . . . they like novelty. Glitter and glamor. It ought to do well if we can get it into production. Commercially, I mean." His tone wavered from resignation to defiance. I nodded encouragingly as a number of choice epithets ran through my head: money-grubbing poltroon, miserly vivisectionist, and so forth. . . .

The basic idea seemed sound. Anything with the innate elegance of Somps' aircraft had definite appeal for today's leisure society. However, it would have to be designed and promoted properly, and Somps, who struck me as something of an idiot savant, was certainly not the man for the job. You could tell just from the way he mooned over it that the machine was, in its own odd way, a labor of love. The fresh grease on his cuffs showed that Somps had spent precious hours up on the plateau, fiddling with his knobs and switches, while his bride-to-be despaired.

Such technician's dedication might have passed muster in the days of the steam engine. But in today's more humane age Somps' behavior seemed close to criminal. This head-in-the-clouds deadbeat saw my poor Leona as a convenient way to finance his pointless intellectual curiosity.

My encounter with the two ex-cosmonauts gave me much to ponder.

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I withdrew with polite compliments and rented one of the local hang-gliders. I circled the Throne of Adonis a few times to establish my bona fides, and then flew back to the hogan.

The effect was enchanting. Cradled by the machine's slow and careful swoops and glides, one felt the majesty of an archangel. Yet I found myself wondering what it would be like without the protective shroud of computer piloting. It would be cold sweat and naked risk and a rush of adrenalin, in which the shadowed crevices far beneath one's feet would be, not an awesome panorama, but a sheer drop!

I admit I was glad to send the machine back to the mesa on its own.

Inside the hogan I enjoyed the buffet supper, carefully avoiding the reeking plates of scorched beef served to the elders. ("Barbecue," they called it. I call it murder.) I sat at a long table with Claire Berger, Percival Darrow, and several of Leona's West Coast friends. Mari herself did not make an appearance.

Leona arrived later, when machines had cleared the meal away and the younger guests had gathered round the fire. Leona and I pretended to avoid one another, but traded stolen glances in the firelight. Under the influence of the mellow light and the landscape, the talk drifted to those poles of the modern existence: the beautiful and the sublime. We made lists: the land is beautiful, the sea is sublime; day is beautiful, night is sublime; craft is beautiful, art is sublime, and so forth.

The postulate that the male is beautiful while the female is sublime provoked much heated comment. While the discussion raged, Darrow and I unstrapped our wards and left them in the common room. Anyone checking our location would see our signals there, while we actually conspired among the machines in the kitchen.

Darrow revealed his plan. He meant to accuse Solokov of cowardice, and seize his rival's glory by testing the Dragonfly himself. If necessary, he would steal the machine. Solokov had done nothing more than take a few fluttering efforts around the top of the mesa. Darrow, on the contrary, meant to fling himself into space and break the machine to his will.

"I don't think you realize the danger involved," I said.

"I've been flying since I was a kid," Darrow sneered. "Don't tell me you're spooked too."

"Those were computer-guided," I said. "This is a blind machine. It could kill you."

"Out on Big Sur we used to rig them," Darrow said. "We'd cut out the autopilot on a dare. It's simple if you find the main sensor thingamajig. It's illegal, but I've done it. Anyway, it makes it easy for you, right? If I break my neck, your Somps will look like a criminal, won't he? He'll be discredited."

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"This is outrageous!" I said, but was unable to restrain a smile of admiration. There was a day when my blood ran as hot as Darrow's, and, if I no longer wore my heart on my sleeve, I could still admire the grand gesture.

"I'm going to do it anyway," Darrow insisted. "You needn't worry on my account. You're not my keeper, and it's my decision."

I thought it over. Clearly he could not be argued out of it. I could inform against him, but such a squalid betrayal was completely beneath me. "Very well," I said, clapping him on the shoulder. "How can I help?"

Our plans progressed rapidly. We then returned to the gathering and quietly resumed our wrist-wards and our places near the hearth. To my delight, I found that Leona had left a private note on my ward. We had a midnight assignation.

After the party broke up I waited in my room for her arrival. At last the welcome glow of lamplight came down the corridor. I eased the door open silently.

She wore a long nightgown, which she did not remove, but otherwise we spared ourselves nothing, except for the final sating pleasure. When she left an hour later, with a last tender whisper, my nerves were singing like synthesizers. I forced myself to take two pills and waited for the ache to subside. For hours, unable to sleep, I stared at the geodesic cedar beams of the ceiling, thinking of spending days, weeks, years with this delightful woman.

Darrow and I were up early next morning, our minds grainy and sharp with lack of sleep and a lover's adrenalin. We lurked in ambush for the unwitting Solokov as he returned from his morning jog.

We mousetrapped him badly as he prepared to go in for a much-needed shower. I stopped him, enthusing about my glider-flight. Darrow then joined our conversation "accidentally" and made a number of sharp comments. Solokov was genial and evasive at first, shrugging off Darrow's insinuations. But my loud, innocent questions made things worse for poor Fred. He did his best to explain Somps' cautious testing program for the Dragonfly. But when he was forced to admit that he had only been in the air twenty seconds, the gathering crowd tittered audibly.

Things became hectic with the arrival of Crocodile #1. I had since been informed that this obnoxious old man was Craig Deakin, a medical doctor. He had been treating Dr. Hillis! Small wonder that Leona's father was near death.

Frankly, I've always had a morbid fear of doctors. The last time I was touched by an actual human doctor was when I was a small child, and I can still remember his probing fingers and cold eyes. Imagine it, my dear MacLuhan—putting your health, your very life, into the charge of a fallible human being, who may be drunk, or forgetful, or even corrupt!

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Thank God that medical expert-systems have made the profession almost obsolete.

Deakin entered the fray with a cutting remark toward Darrow. By now my blood was up, and I lost all patience with this sour old relic. To make things short, we created a scene, and Darrow and I got the best of it. Darrow's fiery rhetoric and my icy sarcasm made an ideal combination, and poor Solokov, gravely puzzled and embarrassed, was unwilling to fight back. As for Dr. Deakin, he simply disgraced himself. It took no skill to show him up for what he was—an arrogant, tasteless old fraud, completely out of touch with the modern world.

Solokov finally fled to the showers, and we carried the day. Deakin, still leaking venom, tottered off shortly thereafter. I smiled at the reaction of our small, eavesdropping audience. They hustled out of Deakin's way as if afraid of his touch. And small wonder! Imagine it, MacLuhan—probing diseased flesh, for money! It gives you a chill.

Flushed with success, we now sought out the unsuspecting Marvin Somps.

To our surprise, our wards located Somps with Mari Kuniyoshi and her ever-present foil, Claire Berger. The three of them were watching the preparations for the evening's festivities: projection screens and an address system were being erected in the rock garden behind the hogan.

I met them first while Darrow hung back in the trees. I greeted Somps with civil indifference, then gently detached Mari from the other two. "Have you seen your Mr. Darrow recently?" I murmured.

"Why, no," she said, and smiled. "Your doing, yes?"

I shrugged modestly. "I trust things have gone well with Fred. What's he doing here, anyway?"

"Oh," she said, "Old Hillis asked him to help Somps. Somps has invented some dangerous machine that no one can control. Except for Fred, of course."

I was skeptical. "Word inside was that the thing has scarcely left the ground. I had no idea Fred was the pilot. Such timidity certainly doesn't seem his style."

"He was a cosmonaut!" Mari said hotly.

"So was *he*," I said, lifting an eyebrow at Somps. In the gentle breeze Somps' lank hair was flying all over his head. He and Claire Berger were in some animated technician's shoptalk about nuts and bolts, and Somps' long hands flopped like a puppet's. In his rumpled, tasteless business suit, Somps looked the very opposite of spacefaring heroism. I smiled reassuringly. "It's not that I doubt Fred's bravery for a moment, of course. He probably distrusts Somps' design."

Mari narrowed her eyes and looked sidelong at Somps. "You think so?"

I shrugged. "They say in camp that flights have only lasted ten seconds.

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People were laughing about it. But it's all right. I don't think anyone knows it was Fred."

Mari's eyes flashed. She advanced on Somps. I lifted my hat and smoothed my hair, a signal to the lurking Darrow.

Somps was only too happy to discuss his obsession. "Ten seconds? Oh, no, it was twenty. I timed it myself."

Mari laughed scornfully. "Twenty? What's wrong with it?"

"We're in preliminary test mode. These are novel methods of lift production. It's a whole new class of fluid dynamic uses," Somps droned. "The testing's slow, but that's our methodical risk avoidance." He yanked an inkstained composition book from inside his rumpled jacket. "I have some stroke cycle summaries here . . ."

Mari looked stunned. I broke in casually. "I heard that the go-slow approach was your pilot's decision."

"What? Fred? Oh no, he's fine. I mean, he follows orders."

Darrow ambled forward, his hands in his pockets. He was looking at almost everything except the four of us. He was so elaborately casual that I feared Mari would surely catch on. But that remark about public laughter had stung Mari's Japanese soul. "Follows orders?" she told Somps tightly. "People are laughing. You are crushing your test pilot's face."

I took her arm. "For heaven's sake, Mari. This is a commercial development. You can't expect Dr. Somps to put his plane into the hands of a daredevil."

Somps smiled gratefully. Suddenly Claire Berger burst out in his defense. "You need training and discipline for the Dragonfly. You can't just jump in and pop off like bread from a toaster! There are no computers on Marvin's flyer."

I signaled Darrow. He closed in. "Flyer?" he ad-libbed. "You're heading for the airfield, too?"

"We were just discussing Dr. Somps' aircraft," I said artlessly.

"Oh, the Ten-Second Wonder?" Darrow said, grinning. He crossed his muscular arms. "I'd certainly like a shot at that. I hear it has no computer and has to be flown by feel! Quite a challenge, eh?"

I frowned. "Don't be a fool, Percival. It's far too risky for an amateur. Besides, it's Fred Solokov's job."

"It's not his *job*," Somps mumbled. "He's doing a favor."

But Darrow overrode him. "Sounds to me like it's a bit beyond the old man. You need someone with split-second reflexes, Dr. Somps. I've flown by feel before; quite often in fact. If you want someone to take it to the limit, I'm your man."

Somps looked wretched. "You'd crash it. I need a technician, not a daredevil."

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"Oh," said Darrow with withering scorn. "A *technician*. Sorry. I had the idea you needed a *flyer*."

"It's expensive," Somps said pitifully. "Dr. Hillis owns it. He financed it."

"I see," Darrow said. "A question of money." He rolled up his sleeves. "Well, if anyone needs me, I'll be on the Throne of Adonis. Or better yet, aloft." He left.

We watched him swagger off. "Perhaps you should give him a shot," I advised Somps. "We've flown together, and he really is quite good."

Somps flushed dully. On some level, I believe he suspected that he had been had. "It's not one of your glamor toys," he mumbled bitterly. "Not yet, anyway. It's my experiment and I'm doing aeronautic science. I'm not an entertainer and I'm not doing sideshow stunts for your benefit, Mr. de Kooning."

I stared at him. "No need to snap," I said coolly. "I sympathize completely. I know things would be different if you were your own man." I touched my hat. "Ladies, good day."

I rejoined Darrow, out of sight, down the trail. "You said you could talk him into it," Darrow said.

I shrugged. "It was worth a try. He was weakening for a moment there. I didn't think he'd be such a stick-in-the-mud."

"Well, now we do things my way," Darrow said. "We have to steal it." He stripped off his ward, set it on top of a handy sandstone ledge, and whacked it with a fist-sized rock. The ward whined and its screen flared into static. "I think my ward broke," Darrow observed. "Take it in for me and plug me out of the house system, won't you? I wouldn't want anyone to try locating me with my broken ward. That would be rude."

"I still advise against stealing it," I said. "We've made both our rivals look like idiots. There's no need for high drama."

"Don't be petty, Manfred," Darrow said. "High drama is the only way to live!"

I ask you, my dear MacLuhan—who could resist a gesture like that?

That afternoon crawled by. As the celebration started in earnest, wine was served. I was nervous, so I had a glass. But after a few sips I regretted it and set it aside. Alcohol is such a sledgehammer drug. And to think that people used to drink it by the barrel and case!

Dusk arrived. There was still no sign of Darrow, though I kept checking the skies. As preparations for the outdoor banquet neared completion, corporate helicopters began arriving, disgorging their cargos of aging bigwigs. This was, after all, a company affair; and whole hordes of retirees and cybernetic pioneers were arriving to pay tribute to Hillis.

Since they lacked the relaxed politesse of us moderns, their idea of a tribute was harried and brief. They would pack down their plates of

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scorched meat, swill far too much hard liquor, and listen to speeches . . . then they would check their pacemakers and leave.

A ghastly air of stuffiness descended over the hogan and its surroundings. Leona's contingent of beautiful people was soon outnumbered; pressed on all sides, they flocked together like birds surrounded by stegosaurs.

After a brief delay, a retrospective tribute to Dr. Hillis flashed onto the rock-garden's screen. We watched it politely. There were the familiar scenes, part of the folklore of our century. Young Hillis at MIT, poring over the work of Marvin Minsky and the cognitive psychologists. Hillis at Tsukuba Science City, becoming the heart and soul of the Sixth Generation Project. Hillis, the Man with a Mission, incorporating in Singapore and turning silicon to gold with a touch.

And then all that cornucopia of riches that came with making intelligence into a utility. It's so easy to forget, MacLuhan, that there was once a time when the ability to reason was *not* something that comes through wires just like electricity. When "factory" meant a place where the "blue-collar" caste went to work!

Of course Hillis was only one of a mighty host of pioneers. But as the Nobel Prize winner and the author of Structured Intelligent Multiple Processing he has always been a figurehead for the industry. No, more than that; a figurehead for the age itself. There was a time, before he turned his back on the modern world, when people spoke the name Hillis in the same breath with Edison, Watt, and Marconi.

It was not at all a bad film, of its sort. It didn't tell the whole truth, of course; it was conspicuously quiet about Hillis' regrettable involvement in politics during the '40s, the EEC bribery scandal, and that bizarre episode at the Tyuratam Launch Center. But one can read about those things anywhere. Actually, I confess that I felt the loss of those glory days, which we now see, in hindsight, as the last sunset glow of the Western analytic method. Those lost battalions of scientists, technicians, engineers!

Of course, to the modern temperament, this lopsided emphasis on rational thought seems stifling. Admittedly, machine intelligence has its limits; it's not capable of those human bursts of insight that once advanced scientific knowledge by leaps and bounds. The march of science is now the methodical crawling of robots.

But who misses it? We finally have a stable, global society, that accommodates man's higher feelings. A world of plenty, peace, and leisure, where the beautiful and the sublime reign supreme. If the film caused me a qualm, it was a credit to our modern mastery of propaganda and public relations. Soft, intuitive arts, maybe; the dark yin to the bright

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yang of the scientific method. But powerful arts, and, like it or not, the ones that shape our modern age.

We had advanced from soup to fish when I caught my first glimpse of Darrow. The Dragonfly emerged from the depths of the canyon in a brief frenzied arc, its four wings thrashing in the twilit air. Strangely, my first impression was not of a struggling pilot but of a poisoned bug. The thing vanished almost at once.

I must have turned pale, for I noticed Mari Kuniyoshi watching me strangely. But I held my peace.

Crocodile #2 took the podium. This gentleman was another artifact of the vanished age. He'd been some kind of military bigwig, a "pentagon chief of staff" I think they called him. Now he was Hillis Industries' "Chief of Security," as if they needed one in this day and age. It was clear that he'd been drinking heavily. He gave a long, lachrymose introduction to Hillis, droning on and on about "air force" this and "space launch" that, and Hillis's contribution to the "defense industry." I noticed then that Fred Solokov, resplendent in tie and tails, began to look noticeably offended. And who could blame him?

Hillis at last took the podium, standing erect with the help of a cane. He was applauded loudly; we were overjoyed to see Crocodile #2 go. It isn't often that you see someone with the bad taste to mention atomic weapons in public. As if sensing the scotched nerves of our Soviet friend, Hillis departed from his prepared speech and began rambling about his "latest project."

Imagine, my dear MacLuhan, the exquisite embarrassment of the moment. For as Hillis spoke, his "latest project" appeared on the fringes of camp. Darrow had mastered the machine, caught an updraft from the depths of the canyon, and was now fluttering slowly around us. Murmurs began spreading among the crowd; people began to point.

Hillis, not a gifted speaker, was painfully slow to catch on. He kept talking about the "heroic pilot" and how his Dragonfly would be airborne "sooner than we knew." The audience thought poor Hillis was making some elaborate joke and they began laughing. Most people thought it was clever publicity. In the meantime, Darrow swooped nearer. Sensing with a model's intuition that he was the cynosure of all eyes, he began stunting.

Still avoiding the crowd, he threw the aircraft into a hover. The wings hummed audibly, their tips flapping in complex loops and circles. Slowly, he began flying backwards, the craft's long tail waggling in barely controlled instability. The crowd was amazed; they cheered aloud. Hillis, frowning, squinted across the table, his drone dying into a mumble. Then he realized the truth and cried out. Crocodile #2 took his arm, and Hillis tottered backward into his nearby chair.

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Dr. Somps, his long face livid, scrambled to the podium. He flung out an arm, pointing. "Stop that man!" he screeched. This provoked hysterical laughter, shading close to authentic hysteria when Darrow spun the craft twice tailfirst and caught himself at the last moment, the wings kicking up clouds of dust over the rear of the crowd. Diners, shrieking, leapt from their chairs and fled for cover. Darrow fought for height, throwing full power into the wings and blowing two tables over with a crash and spatter of tureens and cutlery. The Dragonfly shot up like a child's toy rocket.

Darrow regained control almost at once, but it was clear that the sudden lurch upward had strained one of the wings. Three of them beat smoothly at the twilit air but the fourth, the left rear one, was out of sync. Darrow began to fall, sliding out of the sky, listing backward to his left.

He tried to throw more power into the wings again, but we all heard the painful flopping and rasping as the injured wing refused to function. At the end the craft spun about again a few feet from earth, hit a pine at the edge of our rock garden, and crashed.

That effectively ended the festivities. The crowd was horrified. A number of the more active attendees rushed to the crash site while others babbled in shock. Crocodile #2 took the microphone and began yelling for order, but he was of course ignored. Hillis, his face twisted, was hustled inside in his chair.

Darrow was pale and bloodied, still strapped into the bent ribs of the pilot's cage. He had a few scrapes and he had managed to break his ankle. We fished him out. The Dragonfly did not look badly damaged. "The wing gave out," Darrow kept muttering stubbornly. "It was equipment failure. I was doing fine!"

Two husky sorts formed an arm-cradle for Darrow and lugged him back to the hogan. Mari Kuniyoshi hurried after him, her face pale, her hands fluttering in shock. She had a dramatic, paralyzed look.

Lights blazed from the hogan, along with the excited babbling of the crowd. The outside floodlights in the rock garden dimmed suddenly. From the clearings around us, corporate helicopters began to lift, whirring almost silently into the fragrant Arizona night.

The crowd dispersed around the damaged craft. Soon I noticed that there were only three of us left; myself, Dr. Somps, and Claire Berger. Claire shook her head. "God, it's so sad," she said.

"I'm sure he'll recover," I said.

"What, that thief?" she said. "I hope not."

"Oh. Right," I said. I examined the Dragonfly critically. "She's just a little bent, that's all. Nothing broken. She only needs a few biffs with a lug-wrench or what-have-you."

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Somps glared at me. "Don't you understand? Dr. Hillis has been humiliated. And my work was the cause of it. I'd be ashamed to speak to him now, much less ask for his support."

"You still have his daughter," Claire Berger said bluntly. We both looked at her in surprise. She looked back boldly, her arms stiff at her sides.

"Right," Somps said at last. "I've been neglecting Leona. And she's so devoted to her father. . . . I think I'd better go to her. Talk to her. Do whatever I can to make this up."

"Plenty of time for that later, when things calm down," I said. "You can't just leave the Dragonfly here! The morning dew will soak her. And you don't want gawkers out here tonight—poking at her, maybe laughing. Tell you what—I'll help you carry her up to the airfield."

Somps hesitated. It did not take long, for his devotion to his machine burst all bounds. With her long wings hinged back, the Dragonfly was easy to carry. Somps and I hoisted the heavy torso to our shoulders, and Claire Berger took the tail. All the way to the mesa Somps kept up a steady monologue of self-pity and disaster. Claire did her clumsy best to cheer him up, but the man was crushed. Clearly a lifetime of silent spleen had built up, requiring just such a calamity to uncork it. Even though he sensed that I was a rival and meant him ill, he could not entirely choke back his need for sympathy.

We found some flyers at the base of the Throne of Adonis. They were curious and eager to help, so I returned to camp. Once he had the Dragonfly in her hangar and his tools at hand, I was sure that Somps would be gone for hours.

I found the camp in uproar. With amazing crassness, Crocodile #2, Hillis' security man, wanted to arrest Darrow. A furious argument broke out, for it was brutally unfair to treat Darrow as a common thief when his only crime had been a daring gesture.

To his credit, Darrow rose above this ugly allegation. He rested in a wicker peacock chair, his bandaged ankle propped on a leather hassock and his pale, blond hair swept back from a bruised forehead. The craft was brilliantly designed, he said; it was only the shoddy workmanship of Hillis Industries that had put his life into danger. At various dramatic cruxes, he would lean back with a faint shudder of pain and grasp the adoring hand of Mari Kuniyoshi. No jury in the world would have touched him. All the world loves a lover, MacLuhan.

Old Dr. Hillis had retired to his rooms, shattered by the day's events. Finally, Leona broke in and settled things. She scolded Darrow and threw him out, and Mari Kuniyoshi, swearing not to leave his side, went with him. Most of the modern contingent left as well, partly as a gesture of

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solidarity with Darrow, partly to escape the source of embarrassment and transmute it, somewhere else, into endlessly entertaining gossip.

Poor Fred Solokov, made into the butt of jokes through absolutely no fault of his own, also stormed off. I was with the small crowd as he threw his bags into a robot chopper at midnight. "They do not treat me like this," he insisted loudly. "Hillis is mad. I thought so ever since Tyuratam. Why people admire such young vandals as Darrow these days I do not know."

Truly, I felt sorry for him. I went out of my way to shake his hand. "Sorry to see you go, Fred. I'm sure we'll meet again under better circumstances."

"Never trust women," Fred told me darkly. He paused on the running board to belt his trenchcoat, then stepped in and slammed the vacuum-sealed door. Off he went with a whir of wings. A fine man and a pleasure to know, MacLuhan. I shall have to give some thought to making things up to him.

I then hurried back to my room. With so many gone, it would now be easier for Leona and me to carry on our assignation. Unfortunately I had not had time to arrange the final details with her. And I had a lover's anxiety that she might not even arrive. The day had been a trying one, after all, and carezza is not a practice for harried nerves.

Still, I waited, knowing it would be a lover's crime should she arrive and find me sleeping.

At half past one I was rewarded by a dim flicker of lamplight under the door. But it passed me.

I eased the door open silently. A figure in a white nightgown was creeping barefoot around the dome's circular hall. She was too short and squat for the willowy Leona, and her trailing, loosened hair was not blonde, but an unremarkable brown. It was Claire Berger.

I tied my pajamas and shuffled after her with the stealth of a medieval assassin.

She stopped, and scratched at a door with one coy forefinger. I did not need my ward to tell me this was the room of Dr. Somps. The door opened at once, and I ducked back just in time to avoid Claire's quick glance up and down the hall.

I gave the poor devils fifteen minutes. I retired to my room, wrote a note, and returned to Somps' door. It was locked, of course, but I scratched lightly and slid my note under it.

The door opened after a hurried conclave of whispers. I slipped inside. Claire was glowering, her face flushed. Somps' fists were clenched. "All right," he grated. "You have us. What is it you want?"

"What does any man want?" I said gently. "A little companionship, some open sympathy, the support of a soul mate. I want Leona."

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"I thought that was it," Somps said, trembling. "She's been so different since Seattle. She never liked me, but she didn't hate me, before. I knew there was someone after her. Well, I have a surprise for you, Mr. de Kooning. Leona doesn't know this, but I've talked to Hillis and I know. He's almost bankrupt! His firm is riddled with debts!"

"Oh?" I said, interested. "So?"

"He's thrown it all away, trying to bring back the past," Somps said, the words tumbling out of him. "He's paid huge salaries to his old hangers-on and backed a hundred dud ideas. He was depending on my success to restore his fortunes. So without me, without the Dragonfly, his whole empire falls apart!" He glared at me defiantly.

"Really?" I said. "That's terrific! I always said Leona was enslaved by this nonsense. Empire indeed; why the whole thing's a paper tiger. Why, the old fraud!" I laughed aloud. "Very well, Marvin. We're going to have it out with him right now!"

"What?" Somps said, paling.

I gave him a bracing whack on the shoulder. "Why carry on the pretense? You don't want Leona; I do. So there's a few shreds of money involved. We're talking about love, man! Our very happiness! You want some old fool to come between you and Claire?"

Somps flushed. "We were only talking."

"I know Claire better than that," I said gallantly. "She's Mari Kuniyoshi's friend. She wouldn't have stayed here just to trade technical notes."

Claire looked up, her eyes reddened. "You think that's funny? Don't ruin it for us. Please," she begged. "Don't ruin Marvin's hopes. We have enough against us as it is."

I dragged Somps out the door by main force and closed it behind me. He wrenched free and looked ready to hit me. "Listen," I hissed. "That woman is devoted to you. How dare you trample her finer feelings? Have you no sympathy, no intuition? She puts your plans above her own happiness."

Somps looked torn. He stared at the door behind him with the look of a man poleaxed by infatuation. "I never had time for this. I . . . I never knew it could be like this."

"Damn it, Somps, be a man!" I said. "We're having it out with the old dragon right now."

We hustled downstairs to Hillis' suite. I tried the double doors; they were open.

Groaning came from the bedroom.

My dear MacLuhan. You are my oldest and closest friend. Often we have been one another's confessors. You remember the ancient pact we swore, as mere schoolchildren, never to tell each other's mischiefs, and

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to hold each other's secrets silent to the grave. The pact has served us well, and many times it has eased us both. In twenty years of friendship we have never given each other cause to doubt. However, we are now adults, men steeped in life and its complications; and I'm afraid that you must bear the silent burden of my larger mischiefs with me.

I know you will not fail me, for the happiness of many people rests on your discretion. But someone must be told.

The bedroom door was locked. Somps, with an engineer's directness, knocked out its hinge pins. We rushed inside.

Dr. Hillis had fallen off the bed. A deadly litter on the bedside table told the awful truth at once. Hillis, who had been treating himself with the aid of the servile human doctor, had access to the dangerous drugs normally safely stored in machines. Using an old hand-powered hypodermic, he had injected himself with a fatally large dose of painkiller.

We tugged his frail body back into the bed. "Let me die," the old man croaked. "Nothing to live for."

"Where's his doctor?" I said.

Somps was sweating freely in his striped cotton pajamas. "I saw him leave earlier. The old man threw him out, I think."

"All bloodsuckers," Hillis said, his eyes glazed. "You can't help me. I saw to that. Let me die, I deserve to."

"We can keep him moving, maybe," Somps said. "I saw it in an old film once." It seemed a good suggestion, with our limited knowledge of medicine.

"Ignorant," Hillis muttered, as the two of us pulled his limp arms over our shoulders. "Slaves to machines! Those wards—handcuffs! I invented all that . . . I killed the scientific tradition." He began weeping freely. "Twenty six hundred years since Socrates and then, me." He glared and his head rolled like a flower on a stalk. "Take your hands off me, you decadent weasels!"

"We're trying to help you, doctor," Somps said, frightened and exasperated.

"Not a cent out of me, Somps," the old man raved weakly. "It's all in the book."

I then remembered what Leona had told me about the old man's book, to be published on his suicide. "Oh, no," I said. "He's going to disgrace us all and disgrace himself."

"Not a penny, Somps. You failed me. You and your stupid toys. Let me go!"

We dropped him back onto the bed. "It's horrible," Somps said, trembling. "We're ruined."

It was typical of Somps that he should think of himself at a moment like that. Anyone of spirit would have considered the greater interests

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of society. It was unthinkable that this titan of the age should die in such squalid circumstances. It would give no one happiness, and would cause pain and disillusion to uncounted millions.

I pride myself that I rose to the challenge. My brain roared with sudden inspiration. It was the most sublime moment of my life.

Somps and I had a brief, fierce argument. Perhaps logic was not on my side, but I ground him down with the sheer passion of my conviction.

By the time I had returned with our clothes and shoes, Somps had fixed the door and disposed of the evidence of drugs. We dressed with frantic haste.

By now the old man's lips were bluish and his limbs were like wax. We hustled him into his wheelchair, wedging him in with his buffalo robe. I ran ahead, checking that we were not seen, while Somps wheeled the dying man along behind me.

Luckily there was a moon out. It helped us on the trail to the Throne of Adonis. It was a long, exhausting climb, but Somps and I were men possessed.

Roseate summer dawn was touching the horizon by the time we had the Dragonfly ready and the old man strapped in. He was still breathing shallowly, and his eyelids fluttered. We wrapped his gnarled hands around the joysticks.

When the first golden rim of the sunlight touched the horizon, Somps flicked on the engine. I jammed the aircraft's narrow tail beneath my arm, braced like a lance. Then I ran forward and shoved her off into the holy air of dawn!

MacLuhan, I'm almost sure that the rushing chilly air of the descent revived him briefly. As the aircraft fell toward the roiling waters below, she began to pitch and buck like a live thing. I feel in my heart that Hillis, that seminal genius of our age, revived and fought for life in his last instants. I think he went like a hero. Some campers below saw him hit. They, too, swore he was fighting to the last.

The rest you know. They found the wreckage miles downstream, in the Global Park, next day. You may have seen Somps and myself on television. I assure you, my tears were not feigned; they came from the heart.

Our story told it as it should have happened. The insistence of Dr. Hillis that he pilot the craft, that he restore the fair name of his industries. We helped him unwillingly, but we could not refuse the great man's wishes.

I admit the hint of scandal. His grave illness was common knowledge, and the autopsy machines showed the drugs in his body. Luckily, his doctor admitted that Hillis had been using them for months to fight the pain.

I think there is little doubt in most people's minds that he meant to

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crash. But it is all in the spirit of the age, my dear MacLuhan. People are generous to the sublime gesture. Dr. Hillis went down fighting, struggling with a machine on the cutting edge of science. He went down defending his good name.

As for Somps and myself, the response has been noble. The mailnet has been full of messages. Some condemn me for giving in to the old man. But most thank me for helping to make his last moments beautiful.

I last saw poor Somps as he and Claire Berger were departing for Osaka. I'm afraid he still feels some bitterness. "Maybe it was best," he told me grudgingly as we shook hands. "People keep telling me so. But I'll never forget the horror of those last moments."

"I'm sorry about the aircraft," I said. "When the notoriety wears off I'm sure it will be a great success."

"I'll have to find another backer," he said. "And then put it into production. It won't be easy. Probably take years."

"It's the yin and yang," I told him. "Once poets labored in garrets while engineers had the run of the land. Things change, that's all. If one goes against the grain, one pays the price."

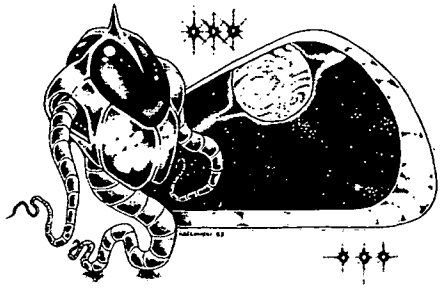
My words, meant to cheer him, seemed to scald him instead. "You're so damned smug," he almost snarled. "Damn it, Claire and I build things, we shape the world, we try for real understanding! We don't just do each other's nails and hold hands in the moonlight!"

He is a stubborn man. Maybe the pendulum will one day swing his way again, if he lives as long as Dr. Hillis did. In the meantime he has a woman to stand by him and assure him that he is persecuted. So maybe he will find, in the good fight, some narrow kind of sublimity.

So, my dear MacLuhan, love has triumphed. Leona and I will shortly return to my beloved Seattle, where she will rent the suite next to my own. I feel that very soon we will take the great step of abandoning carezza and confronting true physical satisfaction. If all goes well then, I will propose marriage! And then, perhaps, even children.

In any case, I promise you, you will be the first to know.

Yours as always,
de K. ●



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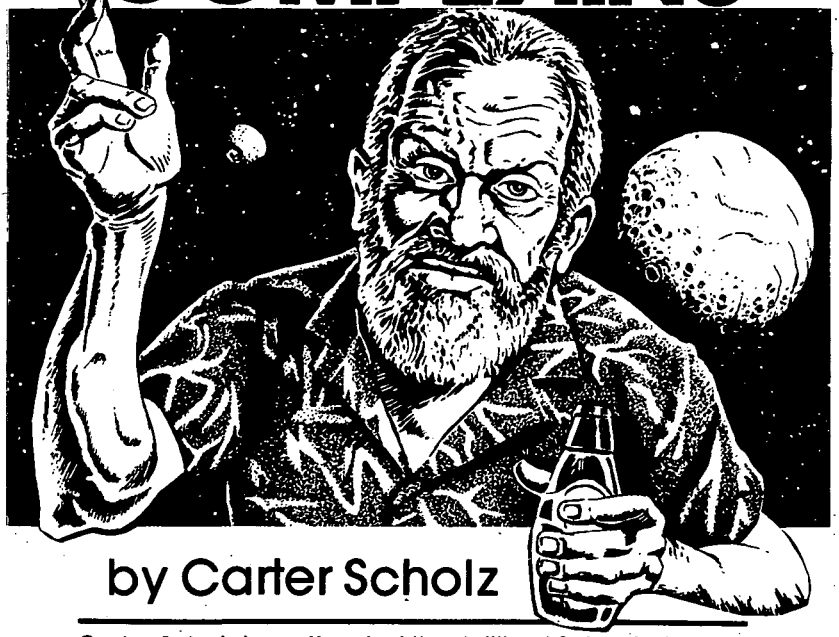
GALILEO COMPLAINS



by Carter Scholz

art: Ed Repka

Carter Scholz has attended the Juilliard School of Music, the Rhode Island School of Design, and the Clarion Science Fiction Writing Workshop. His short stories have been nominated for Hugo, Nebula, and Campbell awards, and his first novel, *Palimpsests* (co-written with Glenn Harcourt), was published as an Ace Special in 1984.

The interview was held in his spacious condominium near Marina del Rey. The venerable astronomer, who still holds Italian citizenship, was looking tan and fit despite his recent resurrection by Fenix Corp.

In appearance and attire he seems little different from any of the retired screenwriters who live in this community. His apartments contain a wall-sized video screen, *objèts d'art* from several centuries, a collection

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of astronomical instruments. Place of honor on the broad marble mantel is held by a slender, elegant telescope of his own construction, the very instrument through which he first observed the lunar surface, the phases of Venus, the rings of Saturn, and the moons of Jupiter.

The huge cost of his resurrection was paid by the Vatican, as partial restitution for its persecution of the astronomer in the seventeenth century. The suit was brought by a direct descendant in consultation with Fenix Corp; the amount of the full settlement has not yet been decided.

But Galileo himself is phlegmatic about his wealth.

"I am well off, yes," he says, sipping a flavored Perrier water. "And I am grateful, of course, for the formal vindication. But the extent of my wealth . . . that eludes me. I am less comfortable here than I was in Pisa. These apartments are in fact smaller than those the Inquisition held me in."

I venture that he could, if he wished, live exactly how and where he pleased.

"True. But if I am to live in this century, then I feel I should live in this century." He glances around the room with bemusement. "My lawyers tell me I am wealthier than the Medici. To me this is laughable. Can I elect a Pope with my wealth, as they did? Can I even cause to be changed that portrait of Fernando de Medici discovering Jupiter's moons? No. That wretched painting, that libel, is now a national art treasure, if you please."

I ask his plans. Will he return to his old profession?

"Why should I? I have seen your big observatories—your Palomar, your Mauna Kea, even your Arecibo. They are impressive as elephants are impressive. But it is not astronomy as I know it. Your astronomers never actually *look* through their instruments, did you know that? They use film and machines. Indeed, your air is so filthy that your largest telescopes, as at Arecibo, are used to track *invisible* waves." He shakes his head, as one who discusses lunacy.

He is clearly touchy about the gulf which still separates him from the modern world. His attitudes, his beliefs, his sense of the acceptable—these are not as ours. Once the greatest astronomer on earth, he cannot but feel inferior today, dwarfed in the face of our science.

I suggest that, with his wealth, he could build the grandest observatory on earth for himself.

"No, thanks. I have no wish to be called a cracked old man."

I ask about his observation of Neptune. Its motion is clearly marked in one of his notebooks. Does he deserve credit for the planet's discovery?

He shrugs. "I didn't know what it was. Who was expecting another planet? I thought it was a star. Or maybe I thought it was an angel, eh?" he adds sardonically.

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I search for something to say, but he leans forward, tapping me on the chest. "Do you know what they are looking for, these so-called *astronomers*, through the blind eyes of their elephants? *The origin of the universe.* They told me so. They point their machines at the edge of existence, and there they expect to find the 'origin of the universe.' Madness!" He leans back, and finishes his Perrier.

Tactfully I shift the topic. Does he harbor any resentment against the Inquisition?

He allows himself a grim smile for a moment, then speaks in a casual voice. "No, not really. If not for them, I wouldn't be here today, eh? And you must understand that I was asking for it. I'd been warned. It was sheer idiocy to publish my dialogues. They were quite willing to let me pursue my studies freely, so long as I made no asinine pronouncements; but I did. During my incarceration they were most pleasant to me. Cardinal Baggi himself made some valuable comments on celestial mechanics, and on the nature of matter. I had, you see, a very irresponsible obsession with what I was pleased to call *truth*, whereas the Church took the longer and wiser view that all truth is relative. The way to truth must be prepared, or it does more harm than good." He sighs. "I wonder if I could resurrect Cardinal Baggi. I miss our talks. But no, it wouldn't be fair to him."

What of his legendary words—*and still it moves*—which history records after he signed the recantation?

"Oh, yes. I muttered that, under my breath I thought, and the old presiding Cardinal—I forget his name—smiled and said, 'Of course it does, my son, but you must not say so.' A very enlightened group, the Roman Church."

Is he still a practicing Catholic?

"Certainly. What did you expect?"

But—his experience of death—surely that must have affected his belief.

"Death was nothing: a hyphen. I was in an intermediate state, as doctrine teaches. Souls are called to their reward only on Judgment Day, not before. That is the true resurrection. Or perhaps—" He smiles inscrutably, and spreads his hands to encompass, it seems, all Marina del Rey. "—perhaps *this* is purgatory. What do you think, eh? All of us dead and damned here, and ignorant of it, a purgatory neither bad nor good, but just like Earth, where we must again earn our bliss or damnation, over and over, until we've learned better."

I am no theologian, but I mention that even the Church has recently admitted that Heaven and Hell may be fictions, or metaphors, rather than literal places. Galileo has a long laugh at this.

"And they called *me* a heretic! Ah, changing times. But perhaps they're

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wise. Perhaps that's been the truth all along, and we're only now ready to accept it. Or perhaps I'm right, and this is purgatory, and such thoughts are devil's snares, eh? What do you think? Have you died, young man?"

I insist that I have not, of course I have not, but even as I speak I have a sudden sickening memory, doubtless false, of an accident . . . he is persuasive, this Italian. I must remind myself that resurrection, in a case such as his, is from fragmentary material. There is potential for error. There are doubts as to the fidelity of the reproduction. I find I am speaking aloud. Galileo dismisses my doubts.

"I am he. Even my memories are intact. Can you say as much?"

My memories? At least I know that I have never died. Galileo favors me again with his inscrutable smile as he rises from his chair. I sense the interview is almost over.

"Yes, perhaps I'm a devil's snare for you. Ah, but you don't believe in the devil. So much the worse for you. Well, if I have my way I won't be resurrected again, despite my wealth. I'm not satisfied with this world of yours. In my day there were giants: the Medici, Michelangelo, Newton, myself. This world's a bad imitation. Your telescopes have mirrors the size of rotundas, or antennae to cover a vineyard, but with all of it you haven't made a tenth the change in your world that I made in mine with this." And he touches the slender telescope.

I ask if no modern achievement has impressed him. What of the photographs taken by unmanned space probes—the sublime breathtaking beauty of Saturn's twined rings seen close, or the tortured surfaces of his namesake Jovian satellites? Do even these leave him unmoved?

Grandly he looks down on me. "Remember that it was *I* who discovered these marvels. Even as I remember that it was God who made them."

This, at last, is too much for me, and I begin to enumerate the dozens, the hundreds, the thousands of accomplishments which have moved our world so far along the paths of progress since his death—resurrections not least among them!—but as I continue I realize that these achievements must be incomprehensible to his archaic mind. As I stop myself he is merely nodding politely.

"A race of clever monkeys," he says. "Best turn those monstrous mirrors back on yourselves."

So I leave the Italian, his vanity irrepressible at the last, and I move into the unnatural sunlight to board my hovercraft. Beyond its tinted glass Marina del Rey seems thin and insubstantial as it fades below me. Soon I am headed north, where I will continue my researches in talks with Einstein and Eduard Degas. Einstein is said to have renounced relativity, and passes his time in Lake Tahoe, learning Tartini violin sonatas and gambling at dice. Degas, rumor has it, has taken up computer graphics. ●

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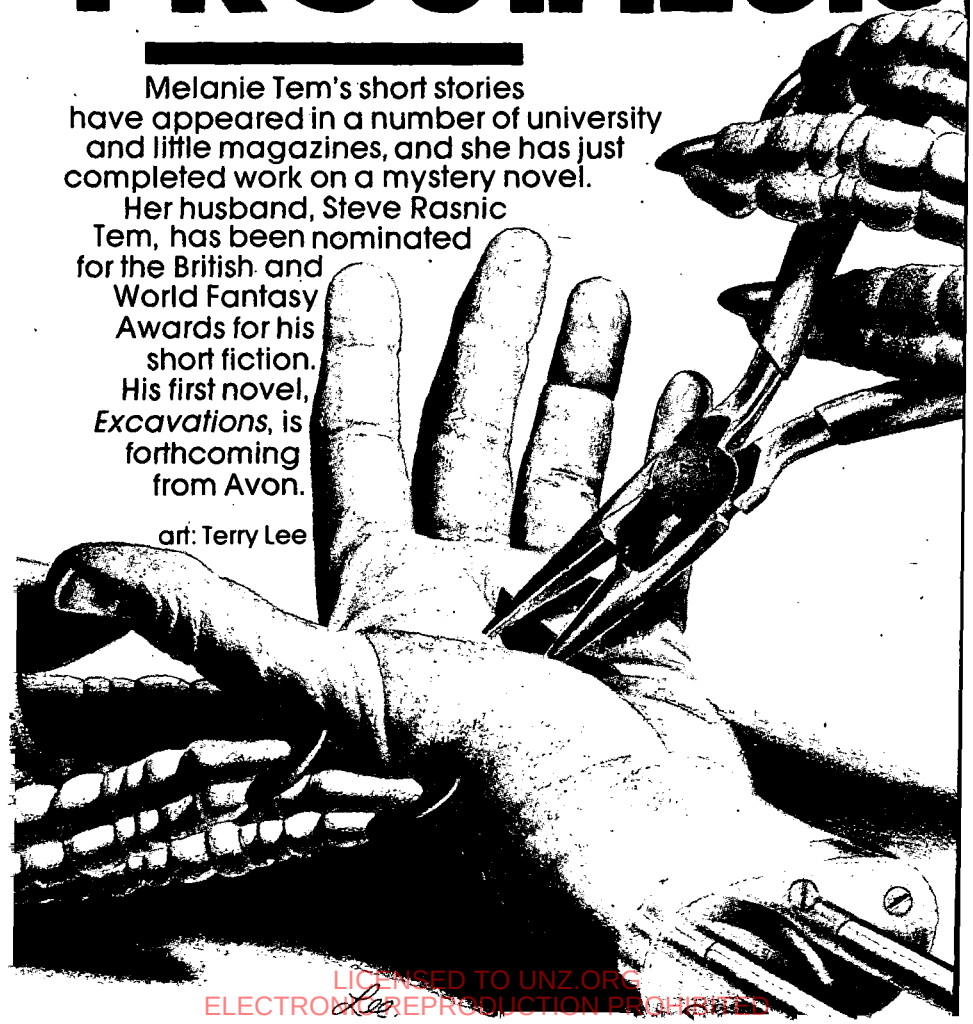
by Melanie Tem
and
Steve Rasnic Tem

PROSTHESIS

Melanie Tem's short stories have appeared in a number of university and little magazines, and she has just completed work on a mystery novel. Her husband, Steve Rasnic Tem, has been nominated for the British and World Fantasy Awards for his short fiction. His first novel, *Excavations*, is forthcoming from Avon.

art: Terry Lee



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Candelaria gasped. Only with deliberate effort did she manage to hold her ground. The little alien thrust itself at her again in a broadly suggestive way, touched, and then massaged her sides with the broad blue flats of its hands.

It was squealing excitedly in rapid-fire and heavily accented English. She could catch some of the words. "Hello, lady! Hello, pretty lady! Welcome to my world! You are new here, are you? Oh, you are new! Will you talk to me? May I show you around? Buy you a drink? Can we—"

She shook her head and pushed the alien away. It stayed close, all but touching her, still talking. Another hustle, she thought wearily. She ran into this on practically every assignment, and by now could recognize a come-on even through the most confusing cultural overlay. Irritating as the routine was, her impulse this time was to laugh. The alien was clumsy, the line a conceit, a parody, and outdated at that.

"Alien" was not, of course, the right word. Candelaria was the outsider, the visitor, and in fact she felt very out of place. But this creature surely couldn't be called "native," either, even if it had been born here. It looked made up, artificial in a hodgepodge way; she stared at one part of it after another, cataloguing. She should have been prepared for this, by her own research, her journalistic training, and the briefing—such as it was—that she'd received from the main office for this particular assignment. But the longer and more closely she looked at the creature who had accosted her, the more amazed she was.

The alien was short; it came barely to her shoulder. On its head was a blonde beehive wig through which she could see down to the pinkish rubber scalp among the remaining follicles of old-style nylon hair. It wore a bulbous fake nose, an enormous glue-on moustache, two artificial legs, and three arms of various skin tones affixed at distorted angles to its body like the fins of an impressionistic pinwheel. The makeup on its face and neck had not been blended into its blue-gray skin, and had turned dark and crusty where the edges overlapped. A female breast replacement with a flushed areola and raised nipple jutted outside the tattered jacket, which looked as if it had probably come from one of the NASA Surplus Stores that languished elsewhere but reportedly flourished here, with sales volumes out of all proportion to the size and real income of the population.

"Bizarre," she observed into the tiny microphone that hung like an appendage around her neck. "Clownlike. Childlike." But none of the adjectives seemed quite right.

The alien was rubbing itself against her like a hungry cat, squealing and hissing in a frenzy. It crossed her mind to step back, but she didn't. The alien reached up and patted her cheeks. Its hands were cold, metallic;

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she couldn't tell if they were real or not. "What's your name, lady? What's your name?"

She hesitated, but could think of no graceful way to withhold the information and no good reason for doing so. "Celia Candelaria," she said, and instantly, for no good reason, regretted it.

The alien seized her name, wrapped its garishly painted mouth around it, drew frames for it in the air with both real and artificial limbs. "Celia Candelaria Celia Candelaria Celia Celia Celia Candelaria Celia." It repeated her name so quickly and so many times that the name lost its meaning in her own ears. She was distinctly uneasy, as though she'd provided the creature with some intimate part of herself, something that could be fashioned and used against her, like the lock of hair in the guts of an ancient voodoo doll.

To stop the alien's chanting of her name, she asked sharply, "Is this Simms' Emporium?"

"Right!" The alien grinned and showed capped teeth. Candelaria could see that its teeth were naturally broader at the base than those of humans, so that the inexpert dental work had resulted in cracked enamel and torn gums.

"Masochistic," she said into her machine. "A perverse kind of vanity." That had a nice ring to it and so she might use it, but she knew it wasn't quite right either.

"Simms! Simms!" The alien was hissing frenetically. "What you want from Simms, pretty lady? Oh, he got *everything!*" It had reached up high to stroke the sides of her head; fortunately her hair was too short and straight for it to tangle its fingers. "What you looking for, pretty lady?"

"I'm looking for Mr. Simms himself."

The alien made a series of short noises that was unmistakably laughter. "That be hard."

"Why?"

"I take you in. I introduce you. I—"

"No," she said stiffly. "I prefer to speak with him alone."

The creature stepped back as though she'd slapped it, and Candelaria found herself feeling guilty. Peculiar reactions; she made a mental note of them. She also noted that she felt both relieved and abandoned now that the little creature was abruptly no longer touching her, now that she no longer had any physical contact with it. That was peculiar, too.

Then the alien writhed its head in a gesture she could not interpret, making the fluffy blonde wig slip backward so that a shiny expanse of its blue forehead was suddenly exposed. Shocked, Candelaria averted her eyes. The creature laughed again and scuttled away.

Candelaria took a deep breath and pushed open the lightweight metal door to Simms' Emporium. Inside it was dusty and dim; her nose began

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to itch almost immediately, and her eyes to widen reflexively. She stood still for a few moments in an attempt to get her bearings, then proceeded with caution.

The place looked like a warehouse. Obviously there had been little attempt to set up an attractive sales floor. Boxes were stacked everywhere; some hung open, others were sealed shut, while others still bore shipping tags. Candelaria had to squint and peer to read the labels: "Hands." "Noses." "Feet." "Ears." Here and there an item of merchandise protruded, a hand or a foot gleaming pink or yellow or brown or black in the half-light. Though she was moving slowly and carefully, Candelaria tripped over something—a leg, its syntheflesh ripped in places to reveal the wires and hydraulics underneath. She stifled a twinge of irrational horror.

She laid the leg down and resisted the impulse to wipe her hands on her pants. She advanced slowly, her reporter's senses askew. She was so disoriented that she was experiencing some actual vertigo and was afraid to brace herself against the towers of boxes for fear they'd tumble down and scatter fake human body parts across the floor. The image made her laugh, made her stomach lurch. Rocket lag certainly, and the effects of unfamiliar food no matter how terrestrialized it was claimed to be, and the emotional aftermath of that oddly intense encounter with the alien outside the Emporium.

But there was also something intrinsically disorienting about this place itself. Candelaria made a whispered impressionistic note about her responses for later refinement, not wanting to disturb the eerie silence by speaking aloud. There were state-of-the-art recorders that could pick up subvocalizing; of course, *Infonet* wouldn't spring for such a thing. Candelaria frowned irritably.

Suddenly she stopped short, face-to-face with what was apparently the Emporium's only display. It was crude, but—she told herself wryly—effective: her heart was pounding. A shabby antique mannequin had been set up near the center of the cluttered floor. Thick blue-gray paint layered its egg-shaped face. It wore synthetic ears, two left hydroarms, four breast replacements with the straps and connectors dangling. Enormous and very white false teeth jutted from the gaping mouth cavity. A fake nose was attached to the dummy's abdomen where the navel should have been; one nostril ring glinted silver. Candelaria's gaze traveled on downward and she laughed aloud; a giant dildo had been fastened in an erect position between mismatched hydrolegs.

"May I help you?"

Candelaria started, then turned to peer along a corridor formed by two high walls of boxes all labeled, with racist imprecision, "Face Paint Flesh Tone." A figure stood in this irregular canyon, one arm extended as if

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gesturing toward her. The figure was distinctly human, but for an instant she thought there was something subtly wrong with it—a shoulder out of line, perhaps, or a hip turned at an unnatural angle, or the torso bent impossibly. Like a body viewed through running water, she thought, or like an ancient human being's fantasy of what an alien would look like.

The figure came toward her and the distortion was gone. Candelaria couldn't imagine what she'd seen that had confused her, and that confused her even more. This person seemed normal enough, although at first she couldn't decide the gender.

"May I help you?" the milky voice repeated. "Looking for something special? A memento for the kids? A novelty gift for the lover?"

Annoyed to be taken so lightly, Candelaria said firmly into the slightly-echoing space between them, "I'm not shopping. My name is Celia Candelaria, and I'm a reporter for *Infonet.*" She offered him her card. It seemed to take a long time before the card was out of her hand and into his. "Mr. Simms, I presume."

He bowed. "At your service."

"You're the manager of—all this?"

"Manager, owner, proprietor, founder, monopolist. If I do say so myself. To what do I owe the honor of your visit, Ms. Candelaria?"

"There's been a great deal of interest at home lately in colony businesses. And yours is rather well-known, Mr. Simms."

"Gordon," he said, taking charge, and stepped toward her with both hands extended. He came so close so quickly that she would have stepped away if her back had not already been pressed against the wall of boxes. As it was, she took advantage of his proximity to take stock of his appearance for use in a future report. Her first impression was that he was a remarkably unhandsome man. He was tall, probably in his late thirties, dark-haired, somehow awkwardly built. Candelaria found herself more interested in him than she'd expected to be. She also noticed that he held her hand in both of his slightly longer than necessary.

"I thought you'd be much older," she told him. "According to my research, you were one of the first merchants here."

He nodded. "Been here a long time."

He sat down on a box marked "Breasts" and casually crossed his legs. In this context, the commonplace gesture seemed almost obscene. She leaned gingerly against a stack of makeup boxes and switched on the mike, reflecting on the strange and inconvenient places she'd conducted interviews since her assignment to the colonies. She was tired of it, tired of the traveling and the perpetual sense of rawness, of the feeling that everything was just now forming rules and patterns everywhere she went.

But it was a living, and anyway she'd found no place worth staying,

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no place from which she really regretted moving on. And at the moment here she was, starting an interview with what appeared to be a willing subject, and a story with a readymade angle. Things could be worse. She sighed.

"Spent some time in the service here," Gordon Simms was saying. "Bought my early discharge in order to stay on. I know an opportunity when I see one. Developed my contacts, did a little start-up promotion, and that was all it took. My wares sell themselves. All I have to worry about is keeping up the inventory."

Candelaria moved away from him among the dusty boxes, turning up the mike as she went. "I notice that not much of your overhead goes to—appearances."

He chuckled. "Ah, but Celia, that's what my business is all about. Appearances."

"You know what I mean." She waved her hand testily, rapped her knuckles against the side of a box so that dust flew. "This place is a mess. A lot of your merchandise is dirty and damaged."

"I used to worry about that," he agreed. "Professional pride or something. Business ethics. But my customers don't care what shape the stuff is in, and I certainly don't need to lure them with clever displays. Usually they know what they want when they come in, and they find me by word of mouth. And actually they'll pay more for damaged goods. They like to think of it as being more used, more authentic, more *personal.* You ought to hear some of the conversations about who might have used this or that and for what purpose."

"Like slavefans," she said, both to him and into the microphone. "Tearing off a piece of the holo-star's shirt so they can feel close to their idol."

"I've thought about worshippers," he said, "and their religious relics that for some reason make it easier for them to pray."

Candelaria shook her head and laughed. She was fascinated, almost despite herself. She was interested in Gordon Simms. She *liked* him, wanted to know him better than would be necessary in order to produce the slightly-better-than-puff piece her editor was expecting. Such feelings were unwise. They would get in the way, and deadline was fast approaching.

Frowning, she picked up a bent and dusty left arm from the floor and turned it over in her hands, getting used to the cold-flesh feel of it as she said to him, "Some people think your little enterprise here is immoral, Mr. Gordon Simms."

"Immoral?" He raised his eyebrows.

"Pandering to some grotesque need of these poor people. Creatures. Whatever. Exploiting a cultural neurosis. Demeaning the human body."

He shrugged, and for some reason she thought it a clumsy motion.

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"I don't think much about human morality anymore. It doesn't seem to have much point in an alien culture. But now that you mention it, I guess I'd be more likely to say there's something morally *right* about what I do. I think I'm performing a service. Facilitating communication. Making it possible for there to be meaningful contact between species." He chuckled and waved his hand in a gesture of dismissal. "Not that that's why I do it, of course."

"Why *do* you do it?" Candelaria demanded, though she would have thought the answer would be obvious.

"To make money," he said. "I know an opportunity when I see one."

Candelaria nodded. Carefully she laid the arm back into its box. Its fingers grazed her own, and both real and artificial digits moved slightly in response to the unexpected contact between them.

Simms stood up. "I was just going to close up and go to dinner when you came. Would you care to join me? I know a little place that specializes in old-fashioned Terra food, cheeseburgers and eggrolls, that sort of thing. It's kind of a nice change."

She looked at his hands, outstretched toward her again, and for a moment the skin looked mottled, as if it had been bruised or inexpertly painted on. She avoided his touch, but said, "Sounds good. I am tired of space food," and preceded him to the door.

"Wait!" he called.

She stopped and turned, her hand on the door swinging it partway open. The motion of the door sent a swatch of bright light back and forth across the interior of the Emporium, so that boxes and appendages and mannequins and Gordon Simms himself were alternately lit and shadowed.

"Wait," said Simms again, and came toward her smiling. "Wear this. In honor of your visit, a gift from the Emporium."

He handed her a pair of cat's-eye sunglasses with iridescent sparkles in their pale-lavender frames. She stared at them, then shook her head, and held them out to him. "I don't accept gifts from subjects. Corrupts professional objectivity. Makes me beholden."

"Please," She could see that he was still smiling, but the smile had gone out of his voice. "A bit of local color, then. For verisimilitude."

"I hardly think they're my style."

"Please." he said again. "They'll look lovely on you."

When she still hesitated, he took the sunglasses from her and settled them firmly on the bridge of her nose, reaching under her hair to hook the earpieces in place. For some reason, though they dimmed her vision considerably, Candelaria left them on.

The neighborhood around the Emporium was poor and rundown and colorful, with crowded open markets and a cacophony of voices. There'd

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been at least one spot like that on every planet she'd visited. The streets were teeming, practically impassable in places. Aliens were everywhere, bits of their blue skin shining through bizarre disguises. Huge glasses over their tiny semi-circular pink eyes. Massive thighs squeezed into "suntan" pantyhose riddled with runs and tears. A stout female sporting several wigs of different colors, a handlebar moustache, and a goatee. At the mouth of an alley, a spirited wrestling match over a mechanical kneejoint between a short middle-aged female and a very old male who wore four multi-colored brassieres and a glass eye dangling from one earlobe.

Simms and Candelaria walked through the alley, something she would not have done by herself, for unfamiliar alleys anywhere seemed dangerous whether they actually were or not. At the other end of this one was a vendor's stand with a gay striped canopy. Simms slowed as they approached it, and Candelaria saw that the counter was crowded with artificial eyes. The vendor—who wore at least four whining and crackling hearing aids on a string around his neck—touched the eyes one after another with a long, thin, pointed instrument, causing them to blink crazily; Candelaria guessed that he was applying minuscule electric shocks, and she was impressed by the ingenuity of the system as well as by its oddity. The crowd murmured and cheered.

Watching a child pop a handful of artificial eyes into its pocket like marbles, Candelaria found herself leaning against Simms, his hand lightly at her waist. She straightened and adjusted the sunglasses. "What's it about, do you think? Why this fascination with human body parts?"

"I think it has something to do with an obsessive need to make contact. Ever since the first explorers dropped out of the sky with their sleek ships and wealth, the natives have been fascinated by humans, and they seem to have both a terrible need and a terrible fear of being in intimate contact with us."

"But they're not 'in intimate contact.' All those prosthetic devices make any contact phony."

"Exactly. And that makes it safer. They can pretend that they're really communicating while they make sure they really don't. They can have it both ways." She was struck, touched, by how much thought he'd obviously given this puzzle.

A labor robot stopped beside them; as they passed it, the head unit stayed rigid, but the strip holding the visual sensors rotated slightly to keep Simms and Candelaria in view. She imagined trying to make intimate contact with a thing like that, and shuddered. But in a way it would be easier, she thought, because you'd know from the beginning what you were dealing with.

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Simms glanced at her, glanced away. "In all the years I've been here," he said, "I've never once seen a native without a human prosthesis of some kind attached to its body. Never once."

The meal was surprisingly good, the restaurant charming with its thoroughly anachronistic eclecticism. It was altogether a pleasant hour, and Candelaria hated to spoil the mood by asking questions. She sipped the pale heady wine and almost reflexively checked the mike with a quick touch to the front of her shirt, reminding herself sternly that she was here on business and, after all, an expense account.

But she could think of nothing sensible to ask. Her prepared questions now seemed totally irrelevant. She smiled a little sheepishly at Simms and with disproportionate pleasure concentrated on finishing her pepperoni pizza.

They walked together back to her hostel. Not knowing the customs, she had left the sunglasses on in the restaurant, and she didn't remove them now either though the streets were nearly dark. At first the few passersby didn't look to her to be disguised at all, and that was a little unnerving. She wondered why, and decided to wonder about it later when she was alone.

She took off the glasses to see better and, feeling oddly exposed, rubbed her eyes. Then she began to see that every native they passed was indeed wearing all sorts of prosthetic devices—wigs, teeth, hands, hips, feet. But these appendages had been constructed and attached far more skillfully than any she'd seen before. Maybe nighttime fashion standards were more sophisticated.

She slipped the glasses back on and edged a little closer to Simms. Welcomingly, he put his arm around her. The stars were a hazy cloud of milk drops, the buildings a moody jumble across the deep blue of the sky. Everything was unfamiliar. Arousing. She stopped, turned, looked up into Simms' shadowed face. She could hardly make out his features, and she wanted to see him, so she took off the glasses again. Then she put her hands on his shoulders, stood on tiptoe, and kissed him.

He stiffened, did not return the kiss or the embrace. Shocked, she stepped back. "I—I'm sorry," he said hastily. "I guess I'm just not used to being so close to a pretty woman any more." She regarded him carefully. She couldn't read his expression. He looked to her like no man she'd ever known.

During the next weeks, Candelaria found herself seeing more and more of the little creatures who inhabited the planet—and more and more of Gordon Simms. In the daytime she walked the streets by herself, filling the storage area of her recorder with notes and observations. The natives stared at her, especially the children. Some of the bolder ones reached

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out and fingered her hair, stroked the exposed skin on her arms and neck.

Once a group of them trapped her in an alley; both exits were blocked by their squat little bodies, and at her back was a wall. For awhile she was frightened, and to calm herself she kept talking into the microphone. "One of them is wearing an Afro wig that's half as big as she is. One of them has long fake nails on every finger and toe. I suppose they could be used as weapons, although they're so long they'd probably bend and break. One of them has braces that are too big for him on both legs, and a gigantic neck brace that keeps his head from moving. One of them—"

She was still talking when the squealing, tittering crowd disgorged one of its smallest members toward her. This child came racing and leaped into her arms; she was so startled that she nearly dropped him and had to lean against the wall for support. She gazed into the blue face of the little creature, which was unadorned except for sequined false eyelashes glued all around his semi-circular pink eyes, extending almost to the tip of his wide flat nose. "Hello there," Candelaria said softly. "What do you want from me, little one?"

Chittering under its breath, the child reached up, took off her glasses, and dropped them onto the ground. Then he placed his palms on her cheeks and spread his long flat fingers. She closed her eyes and held her breath. The child moved his fingers over every part of her face, lightly probing her eyesockets, her mouth, the soft spots behind her ears. Then he pulled her close and briefly laid his own cheek against hers. His skin was soft and cool. Candelaria was moved to the brink of tears, though she had no idea what any of this meant or what she was expected to do in return. Apparently finished or filled, the child wriggled free of her and scampered back to his peers, who had been quiet and who now exploded into shrieks of laughter and scattered out of the alley, letting her go.

Her deadline came and went. She sent a message explaining that the assignment had turned out to be more complex than they'd thought and requesting an extension; by the time the grudging approval made its way back, nearly half the approved extension period was already gone. "My editor won't know what to do with all this stuff," she told Simms, laughing, showing him the bulging stack of notes edited from the tape by the portable processor set up in her rooms. "*Infonet* isn't exactly known for its in-depth features."

He was lying on the bed in her hostel room. She was sitting cross-legged on the floor not far from him. They passed back and forth a pipe of some sweet-smelling native vegetation, and quiet music from home played in the background. The scene had all the makings of intimacy,

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but Candelaria knew better than that by now. This man was not easy to get close to, physically or otherwise.

Especially physically, she reflected ruefully. He would take her hand to guide her when they walked the dark night streets, or put an arm protectively on her shoulder, and once or twice when they'd parted for the night he'd touched his lips to the top of her head. That was all. Candelaria had been confused, frustrated, hurt. Now she was acutely curious, a woman attracted to an enigmatic man, a reporter on the trail of the angle to her story.

"Why don't you give your editor what she's used to?" he asked now, eyes closed above the pipe. "A little sensationalism? A little—'yellow journalism,' I believe it's called?"

She laughed, almost startled. "I haven't heard anyone use that since my History of Journalism professor."

Gordon was silent. Candelaria was thinking how oddly humorless the man was, when he spoke up again, "I was only suggesting that perhaps you could give your editor what she wants, and satisfy your own boundless curiosity at the same time."

She waited, holding her breath, longing to switch on the mike under her shirt but afraid he'd notice. Instead, she adjusted the shoulder pads he'd found for her in a shipment last week; she wasn't used to wearing them, and they itched and chafed, but she liked the square angles they gave to her silhouette.

When Simms said nothing, she asked carefully, "What is it you're offering?"

"I'm not sure." He stood up abruptly, swayed a little, caught himself. "But come to the shop tonight after dark. Maybe we can wrap this thing up."

Wordlessly, Candelaria watched him go. Conscious of being hurt and angered by his apparent eagerness to have her done with the assignment and out of his life, she wondered again if she'd completely misread him. That was a fruitless line of thought, of course, because she had no clear reading of him at all and no way of checking out her constantly shifting perceptions.

With a sigh she turned off the music, turned up the lights, extinguished the pipe. Then she seated herself at the cramped little desk to begin the laborious process of pulling notes together into a coherent form.

It was barely dusk when she approached the Emporium, but she was too eager to wait any longer. The shop's shabby grotesquerie was almost welcoming. She stepped inside and closed the rattling door behind her. It swung a few times and then was still. From out of the shadows Gordon Simms came toward her. She knew it was Simms because she didn't think it could be anyone else, and because something about his walk was

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familiar, but otherwise she would not have recognized a single thing about him. She gasped, stared, and was chilled.

He was much shorter than she knew him to be, coming barely to her shoulder; looking down at his bare feet, she guessed he'd always before worn platform shoes. He was almost completely bald, and the skin of his head where it had been sheltered so long by the wig was a much paler blue than that of his face and neck. His gums were bleeding and he had no teeth; his mouth cavity had collapsed inward so that his chin jutted forward, and his flat wide nose had spread halfway across his face. She saw that both his hands were gone, one above the elbow and one just below, and that his squat body was twisted so that not all of it seemed to be facing her at once.

"Celia?" he said, and she would not have known his voice. She tried to see the place in his smooth blue neck where a voice synthesizer had been inserted and recently removed, but the light was too dim.

"Gordon?" she asked shakily.

He came closer, nodding erratically. "This is who I am. Without prosthesis. Without the disguise. Without anything between us. This is who I really am." He held out his arms.

He was offering her something that terrified her. She was breathless with the enormity of what he was offering, the bareness. She was horrified by the naked alien sight of him, when she'd thought he was one of her own kind.

Abruptly Candelaria turned away from him. Though she couldn't move very fast in the clutter of the Emporium, she felt as though she were running. Boxes and crates closed in around her. Dust filled her eyes and nose, coated and numbed her skin. Human body parts were everywhere. Frantically she told herself that they were fake, and then touched her own arms and lips and breasts to make sure they were still there.

A swarm of glass eyes tilted toward her out of the dimness. Watching her. Winking in a sordid way. She swung the flat of her hand against the corner of the crate, and the eyes spilled out in a deluge, each for a split-second glinting like a hard round tear, clattering and rolling away from her feet. Countless hands reached out to caress her, to hold her, to keep her from moving past; she could shake them off, but they fell with a disgusting rubbery sound, bouncing a little against her ankles.

She could hear breathing hard behind her; the alien Simms was following her. Her flight took her deeper and deeper into the Emporium, which was much larger than she had thought, much more labyrinthine. She could hardly breathe. Everything she saw and heard was distorted. Once she cried out, and was frightened by the sound of her own voice.

"Celia!" called Simms. He was very close. "Wait!"

Candelaria turned a corner to hide herself from him. She didn't have

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much time. A box on the floor in front of her overflowed with fur; she pulled out a handful, pulled the things apart, found a red wig and a full gray beard and put them on.

"Celia!"

He sounded slightly farther away now, as if he'd taken a wrong turn. In this part of the Emporium—its heart, she imagined—there was almost no light. She crept sideways, like some scuttling kind of creature. Her hands found a tall crate, eased the lid open, pulled out appendages that felt more like flesh than her own flesh, attached them at random places on her body with the straps and hooks only approximately fastened. Some part of her body bumped against a box and she heard bottles clinking together; she pulled out a large one, unstoppered it, and doused herself with scent like nameless flowers and musk.

"Celia." He was not inches away from her. She could feel his body heat, smell him, hear her name as he whispered it again and again. "Celia."

Stumbling over her own unfamiliar arms and legs and breasts, she turned toward him. Her chest ached; she felt on the verge of tears. But her hodgepodge disguise was strangely calming. She imagined herself embracing the twisted little creature. She imagined touching him, her fingertips resting on alien skin, and found she could retain the image a few seconds before having to turn away. She gathered her cloak of prostheses closer to her own flesh, and the feel of plastics and fibre was oddly warming.

From inside her shirt she pulled the microphone and extended it toward him like a hand, both welcoming and distancing. She wanted to ask him something, but she was still too panicky to frame the question. She wanted to ask him. She turned up the volume. She fought for control. She wanted to ask him. Her voice was muffled by the heavy beard in a comforting way. He stared at her with what might have been apprehension. "Tell me," she said, her voice beginning to break. She moved the microphone closer, a reaching or a threatening. "I need you to tell me about it. Please. Gordon, I need you to tell me how it is." ●

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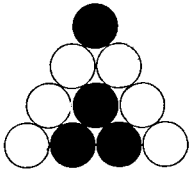
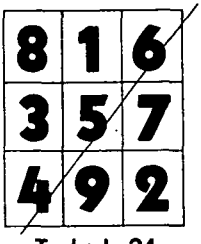
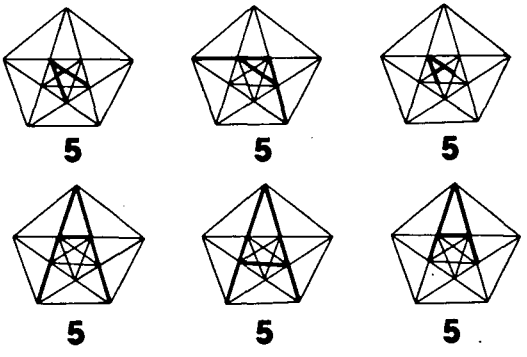
(from page 20)

SOLUTION TO PUZZLE FLAGS ON MARS





Total: 31



Total: 30

The illustration shows how four circles are shaded, how to draw a line on the *lo shu* that gives a total of 31, and how to find six sets of the letter *A* to make a total of 30.

To construct a 3 × 3 magic square with consecutive even numbers starting with 2, simply double the number in each cell of the *lo shu*. Now take 1 from each cell of this "even" magic square and you'll have the "odd" square containing the consecutive odd numbers starting with 1.

The magic constants of these squares are 30 and 27 respectively. The constant of any magic square, by the way, is easily determined. Simply add all the numbers in the square and divide by the number of horizontal rows (or vertical columns).

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by Michael Bishop

ALIEN GRAFFITI

(A PERSONAL HISTORY OF VAGRANT INTRUSIONS

The title of our last story by Mr. Bishop, "Close Encounter wi the Deity" (March 1986), is also the tentative title of his short story collection upcoming from Peachtree Publishers, Ltd. A novel, *Philip K. Dick is Dead, Alas*, will also be forthcoming from Tor Books. At the moment, Mr. Bishop is a 1985 Nebula finalist for his novelette, "A Gift from the GrayLanders" (September 1985).

art: Gary Freeman

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I was nine years old when the baffling iridescent hieroglyphics started appearing in our world. The first one—insofar as it is possible to identify the beginnings of the phenomenon—unraveled in the sky over Cádiz in southern Spain: a monstrous airborne scroll of cobalt-blue, crimson, and glittering saffron calligraphy, with no recognizable characters or point of origin. Spontaneously, it seemed, the "letters" of this mysterious artifact manifested in the cloudless vault and hung above the near-naked Iberian and foreign bathers for most of that long August afternoon.

On holiday from our habitat outside Nairobi, Kenya, my mother and I were two of the foreigners; and what I chiefly recall about the apparition of these graceful, glowing, condominium-sized characters—like a huge, indecipherable ad for the very area of the Mediterranean coast that we had chosen to visit—was that no one on the beach reacted to it with dismay or horror. People did look up, of course, gesticulating, chattering to one another, and sometimes even theatrically feigning fear—but even I, at nine, could see that no one felt genuinely threatened by the shimmering graffiti overhead. Nor did the bizarre script hold any terror for me, either. I took my cue from all the other bathers and assumed along with them that American or British high-tech pranksters had thrown the perplexing image of these characters against the sky by some sort of newfangled telehолography. If anything, those of us on the beach watching this show were more blasé than bowled over, and the only matter that really interested anyone was the *meaning* of the beautifully grandiose, but unfamiliar, symbols that the clever Anglos had projected at us from either the British colony of Gibraltar or the U.S. naval base just west of our playa.

To get the meaning, though, the alphabet or pictographic system encompassing these symbols had to be deduced; and my mother, naked but for an elegant diaper of gold foil, fell into a discussion with a hairy Spaniard. This man debated by walking to my mother's right and proposing one set of speculations and then circling back to her left flank and mounting a counterspeculation. During this sweaty, unorthodox pavane, he and my mother decided that the characters coruscating in the high Mediterranean noon belonged to no standard orthography familiar to them. Certainly not Roman, Hebrew, Greek, Cyrillic, Arabic, or any ancient or modern version of Devanagari. And certainly not any of the common Oriental pictoral or syllabary systems. By simple elimination, then, they concluded that the alien graffiti flashing above the sea were either esoteric beyond decipherment or emblematic of nothing but rank gibberish. It did not seem possible that such graceful characters could encode only nonsense, however, and almost everyone else on the beach concurred, preferring to admit ignorance in the face of the gigantic hovering script than to declare it meaningless.

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"What if it's just designs?" I asked my mother. "What if it's just decorations?"

Fondly, she kneaded my nappy head, as if attempting to move my brain into a position more helpful to cognition. "You're quite the little abstract expressionist, aren't you?" she said, as much for the burly Spaniard's benefit as mine. "Well, maybe you're right, Jemmi, but I hope not. I'd be much happier to think that somehow, at least, these daunting scribbles *mean*. That they mean, you know, something very deep and important."

"Another American joke," scoffed a heavy Spanish woman almost as devoid of wardrobe as my mother. *"Nada más."*

Several tourists were wielding cameras; and an hour or so after the lofty apparition's advent, a video crew from Cádiz came out to record the phenomenon on tape. By this time, those not treating it as a visual prank of great ingenuity and wit were simply ignoring it—sunbathing, swimming, strolling the incandescent quartzite, sipping beer or anisette under their rented beach umbrellas. Even my mother, with the departure of the furry Andalusian, had returned to her English translation of a prize-winning Senegambian novel that she had purchased in Nairobi and carried down with her from our monolithic luxury hotel. Nevertheless, the photographs and videotapes shot that afternoon have long since become documents of unquestioned historical importance.

As for me, I sat apart from my mother's table with a bucket and a shovel, digging perfunctorily in the sand and staring unabashedly at the "hologram" towering over both the shore and the sea. If you have ever seen a painting by Magritte—specifically, the one of an enormous egg-shaped gray rock, a castle carven atop it, floating in defiance of natural law above a bleak ocean—then you may have a feeble idea of how I felt. The mirage-like calligraphy in whose delicate shadow I sat was not so massive as Magritte's levitating boulder, but it did seem to have substance of a kind. (How may I otherwise explain the indisputable fact of that shadow?) Moreover, sunlight shining upon those characters either passed through them in an oddly diminished way or got blocked by a shifting opaqueness that we on the ground could not accurately monitor. A hologram would not have blocked the stinging Mediterranean sunlight, but an object of opaque solidity would not have let it pass. Boy though I was, I knew that what had popped into our hot sky that afternoon had two distinct and seemingly contradictory qualities: ghostliness and materiality.

How could that be?

Half a kilometer of gravity-proof enigma, the symbols overhead stretched from one end of our beach to a spit curving in toward Cádiz. At times, they looked to be made of diaphanous reinforced cellophane,

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but at others they pulsed their pastels and primaries like colossal tubes of melting glass. From micron-thin Mylar to deliquescent porcelain, they seemed to go, and back again. I could not tell if they were more likely to tatter in the afternoon gusts or to drop upon me and all the other bathers like a nightmare load of stained-glass window panes. They fascinated me, but they made me antsy, and I could not fathom why only the video-camera crew and a few amateur photographers were still valiantly working to make a record of, and maybe even to unriddle, this potentially dangerous mystery. What we did not comprehend could indeed hurt us, but no one had yet tried to figure out what sort of substance—real or illusory—made up our floating conundrum.

By six o'clock, the symbols had begun to fade, shimmering so that it was impossible to think them real. My mother, along with several other adults, returned her attention to the phenomenon and even called me over to her to watch the high, seraphic script go more and more pale until, in fact, it was no longer actually, or even hallucinatorily, there. Fulmars and other sea birds, which had avoided this part of the beach during the apparition's reign, began returning as soon as it had achieved total transparency.

"How wonderful!" my mother said. "Didn't I tell you we'd have fun here, Jemmi?"

Today, I am a grown man of thirty-two; and hardly anyone on the planet has not seen a sample of the beautiful glassy symbols that appear and then disappear as the symbols themselves—if I may resort to what may be unjustifiable personification—will. Alien graffiti (no other colloquialism seems quite so apt), these antecedentless symbols have teased, fretted, and haunted Earth's primitive as well as its civilized peoples for twenty-three years. As weather must have been to preindustrial humanity, so these capricious symbols are to us. They intrude, subject us to their presence, and then depart, all with a cool disinterest that either negates or mocks our own identity as intelligent beings.

I have devoted my life to studying the phenomenon. Although no one else, I daresay, has so wide and comprehensive a knowledge of its history, variety, and societal impact, I must confess that both the origin and the ultimate significance of the script remain grand mysteries. Theories abound. Indeed, they proliferate daily, but neither science nor philosophy has yet managed to place an unshakable foundation under any of them. Either we are living in a new age of miracles, or we are beings of such limited intellectual range that only crackpots may now lay claim to certainty.

Beyond our theories (a few of which I will mention later), we have little more than an official name for this phenomenon; we call each new

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outbreak of script a "vagrant intrusion," or a VI. We have VI sighters, VI photorecorders, VI examiners, VI catalogers, VI analysts, and (our workers with the trickiest and most thankless job) even VI forecasters. Despite my relative youth, I have been the head of the Department of Analysis of Vagrant-Intrusion Studies for the past six years. For most of our history, the VI Studies group has done its work under the aegis of the World Meteorological Organization (WMO), which is itself a specialized United Nations agency headquartered in Geneva.

"Everyone talks about vagrant intrusions," one of my analysts likes to joke, "but nobody ever does anything about them."

But what, realistically, can we hope to do? Satellites can monitor the development and track the movement of storms at sea; meteorologists can issue tornado watches and warnings; rainmaker pilots can seed cloud formations to produce rain; air-conditioning systems can offset the effects of otherwise unbearable heat. But vagrant intrusions—alien graffiti—crop up unpredictably, in only marginally predictable places; and all our still and action photos, hands-on analyses, cross-logging procedures, philosophical conjecture, and, yes, impotent hemming-and-hawing leave the basic phenomenon itself untouched. We are at the summons, the whim, the mercy, and, sometimes, the accidental benediction of an impersonal but frequently human-seeming happenstance.

You see, in the months after my mother and I witnessed one of the first vagrant intrusions—if not *the* first—to impinge on our everyday reality, a dozen dozen sightings took place at random intervals worldwide. Half of these VIs broke out aloft, to all appearances unsupported, just as ours had been, but the remainder chose solid backgrounds against which to manifest—cliff faces, various kinds of walls, and, in some early instances, billboards. These graffiti clung to the surfaces on which they had appeared as if by an incomprehensible adhesive force. Further, to speak metaphorically, each intrusion presented a unique "message," for the characters comprising it did not reocccur in the same pattern from one manifestation to the next.

What did the intrusions look like? What dimensions did they have? And what did analysis determine about the makeup of each VI adhering to a tangible surface?

First, they all looked very much like the monumental line of script that had appeared above the holiday crowed near Cádiz. That is, they resembled *writing*, carefully formed symbols in sequences suggestive of an underlying or pervading intelligence. Also, the script seemed to be a variety of mature cursive, with interlocking loops, arcs, and curlicues—not, in other words, an infantile printing or a primitive cuneiform or runic system. Amethyst, ruby, sapphire, emerald, or other evanescently gemlike colors radiated from these samples of supernatural cal-

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ligraphy. Indeed, the script often appeared to hover on an invisible borderline between this world and an unreachable but nearby domain of greater beauty and richer subtleties. Glass or crystal now, mist but a moment later, the vagrant intrusions came and went, more or less persisting until they had faded absolutely—a coefficient of decay varying from fourteen minutes to as many as thirty-two hours.

Second, the VIs showed a wide range of sizes. Some, like the Brobdingnagian monster above our playa, stretched half a kilometer in length and ten or twelve stories in height. Few of those that manifested on solid surfaces, however, were so big, probably for the good and sufficient reason that these surfaces—a subway wall in Lisbon, the side of a barn in Alsace-Lorraine, a crumbling stela in the Iranian desert, the rear of an IGA store in Liberty, Kansas, the flank of a capsized truck in Somalia—would not accommodate such brutal giganticism. On the other hand, none of these early apparitions (and none of them since, either) were smaller than three meters in length and one in height, as if whatever alien mind or mechanism had projected them into and briefly affixed them to a grubby sticking place in our reality had no use for the Epigram Writ Modestly.

Finally, these smaller appliqué graffiti—as opposed to the less accessible sort that intruded at high altitudes—were touchable. One could approach them and lay on hands, or calipers, or chemical reagents, or any other measuring or detecting tool; and what one discovered was that the VI had a hardness of unimaginable perdurability, a feel like soapy obsidian, a warmth similar to a mammalian fever, and an illusory depth implying recesses of meaning and nuance wholly beyond human comprehension. To try to strip away or peel back the carapace of a vagrant intrusion, however, was to disrupt its grip on this world before its set time of departure; and many VI workers in those days hastened the leavetaking of these unique messages by taking a chisel, an acid, or even a pneumatic hammer to them. Nor was any experience as frustrating—yea, as humiliating—as that of finding the impenetrable riddle on which one had been working an ill-advised removal technique suddenly, and irretrievably, evaporated. It was like waking from a dream. It was like losing a priceless foreign coin.

Not much has changed in the nearly quarter century since the phenomenon's original occurrences. Touch but don't tamper. Measure but don't manipulate. We have all been relegated to the place of clumsy illiterates attempting to decode a hieroglyphic system for which no Rosetta Stone has surfaced.

On another level, of course, much has changed. People have forfeited their lives as the result of the sudden appearance or the unexpected withdrawal of a vagrant intrusion. A fifteen-year-old boy in Uruguay

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fell eighty feet to his death after climbing a rock, leaping out, and catching the swan-necked descender of a VI, and having the entire message vanish before he could hook his knees over the vitreous loop already supporting him. Small aircraft, power boats, and automobiles have collided with the objects; and hundreds of people every year suffer decapitation, disembowelment, or loss of limb as the characters manifest. For that reason alone, the Department of Forecasting of our VI Studies group comes under intense pressure to improve its performance. It also receives many barbaric threats as a consequence of its failure to predict hurtful outbreaks any better than it already does. Every night, I thank God that I am not a forecaster.

How, though, does one even *presume* to foreguess the exact time and whereabouts of so random an event? That is a hard question. One can only note trends. Earlier, I mentioned the Lisbon subway and various billboard manifestations. In recent years, more alien graffiti have appeared on subway walls and billboards than anywhere else, and our forecasters are often able to predict the advent of a fresh VI on these surfaces. Unfortunately, in self-defense they rarely target its coming to a time period any less than two weeks in duration or its point of arrival to an area smaller than five square kilometers. Critics are fond of noting that so inexact a prediction is virtually worthless. They also harp on the fact that these scattershot forecasts tell the public almost nothing about the likely eruption points and arrival times of aerial intrusions, which have always caused the most fatalities.

To repeat, I thank God that I am not a forecaster.

Many people see the small number of VI-related deaths each year (a worldwide figure less than a tenth of one percent of those killed annually in U.S. traffic accidents) as a small price to pay for the mystery, beauty, and humbling sense of awe that this weird phenomenon imparts to our world and our species. I am of that number, for I have personally seen a moderate-sized intrusion burst into iridescent glory—metallic green, bottle-blue, and molten silver—above a treacherous Venezuelan tepui in the wee hours of a crisp January morning. All the bizarre epiphytic plants around that floating message were illuminated as if by a frozen fireworks display. Even though none of us could interpret it, it spoke to every member of our WMO field team with unearthly power.

I have seen alien graffiti efface the spray-can effusions of the subway *artistes* of New York City; and I have even witnessed American billboard advertisements for American automobiles, cigarettes, and fast-food restaurants give way to delicate mystical symbols that uplift even as they chastise, that ennoble even as they shame. These witnessings were grand

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experiences, productive both of awe and guilt, and I would *never* trade them for dull security or the bland banalities of certain knowledge.

Still . . .

Our ignorance nags. Because it does, we theorize, postulate, and go desperately crackpotting along. After all, when rational procedures of investigation give birth only to further questions and science itself is stymied, to whom may one then turn if not to soothsayers, palmists, entrail readers, astronomers, mystics, and other self-endorsed messiahs? Maybe one of these persons has an answer that will not crumble to dust under intense scrutiny; maybe one of them can provide guidance where the geologists, linguistic specialists, crystallographers, and "meteorologists" at our VI Studies Center here in Geneva can do nothing but spiel statistics and shrug.

Not surprisingly, then, the first popular explanations for the vagrant-intrusion phenomenon had sacred overtones. Today, in fact, the world's newest and fastest-growing religion, Escribienismo, regards each scriptural breakthrough as a theophany (according to Webster's, "a visible manifestation of a deity") and works to establish the sites of known intrusions as shrines or holy places. Similarly, the fastest-growing sects of our extant faiths are those that incorporate into their doctrines an acknowledgment of the sacred implications of every breakthrough.

Indeed, one well-known Protestant denomination has publicly declared that, verse by verse, chapter by chapter, book by book, God is manifesting to the world an incomprehensible "translation" of the Bible into an otherworldly language: the tongue, perhaps, of angels. That close VI analysis, abetted by computer, has been unable to correlate any of the first apparitions of these reputed scriptural passages to the opening of the book of Genesis, or to any other biblical book, has not led the faithful of this powerful denomination to dispute its teachings on the issue.

Other faiths show more caution, but almost all of them declare that the alien graffiti are godly pronouncements of some sort and that those who continue to essay secular interpretations of the phenomenon have by their impiety delayed the very revelation that they so arduously seek. (The vehemence of this feeling probably accounts for the planting of a car bomb—discovered, fortunately, before it could explode—outside the VI Studies Center two weeks ago.) In any event, religious explanations make up sixty-three percent of those that we subject to detailed analysis here in my department. On four or five occasions, almost against my will, I have found myself in vague sympathy with the more coherent and less dogmatic of this kind of theory.

Secular theories run a gamut of intellectual orientations, prejudices, and, yes, even neuroses. The notorious colloquialism *alien graffiti* points to the conceit—seriously embraced by many who have rejected both Es-

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cribienismo and our mutating traditional faiths—that extraterrestrial or transdimensional intelligences must shoulder the blame, or receive the credit, for the entire VI phenomenon. Either aliens from the Magellanic Cloud are playing insidious head games with our species, for malevolent reasons all their own, or else desperate entities from a disintegrating continuum adjacent to our relatively stable one are signaling us for help. In the first case, intrusions resist human attempts to examine them because the Magellani fear that we will discover the heinous fate that they plot for us and so foil their efforts. In the second case, the intrusions disappear when we try to take readings or samples because of the fundamental entropic unraveling of the parallel universe from which our signalers have been madly projecting their unintelligible SOS's.

Other secularists do not go so far, or quite so inventively, afield for explanations. One of my staff members here in Geneva, for instance, has long championed the idea that the VIs represent crystallographic formations of a fleeting kind and that previously undetected atmospheric salts spontaneously coalesce to precipitate them. The fact that they resemble writing she attributes to the fixed number of crystalline structural combinations peculiar to the phenomenon. She feels that, throughout the cosmos, intrusions may be common to Earthlike worlds with atmospheres similar to ours—at least during this latent stage of planetological development. The arguments for her ingenuous point of view occupy nine volumes, of a thousand pages each, but she has not been able to gather the necessary physical data to substantiate her theory, mostly because of the recalcitrant character of the graffiti themselves.

What do *I* believe? Well, as a teen-ager in Nairobi, I, Crazy Jemmi Nakuru, once held that our evolved descendants, perhaps ten or twelve millennia in advance of our present, have found a way to send messages to their distant ancestors, us. Various limitations apply, however; and they are unable to project their advice or warnings any farther back than the year of debut, 1996. Moreover, they have lost so many records of our own era—indeed, of all of human history before the three-thousand-year period spanning their belated rise to eminence—that they can bombard us only with air bursts and wall hangings of an unfamiliar script for an unfamiliar language with an unimaginable grammar and vocabulary. Exactly why I believed this, I don't remember, but it filled an adolescent need for a romantic answer to a thorny metaphysical and phenomenological puzzle; and that need, transmuted by the aging process, undoubtedly accounts for my pursuing a career as a VI analyst.

Other secular solutions to the foremost question of our age include mass hysteria; chemically triggered group hallucinations; communist and/or imperialist weapons testing of an oddly protracted and indefinable

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kind; auric manifestations summoning their focus and staying power from the locations at which they occur; sunspot activity; meteor showers; secret laser holography with an anomalous material dimension; volcanic emissions; advanced special-effect work as Hollywood lays out the longest global prepublicity campaign in the history of commercial film-making; swamp gas; experimental weather balloons; and so on and so on. One of my colleagues in VI photorecording claims that a prehistoric epidemic of the intrusions led to the extinction of the dinosaurs.

"They went crazy trying to figure out what was going on," he hypothesizes. "The same thing may be happening to us."

I am writing this final section of my idiosyncratic memoir in a spartanly furnished hotel suite on the beachfront east of Cádiz. It is the same hotel at which my mother and I stayed in August, 1996, when the world's first (conspicuous) vagrant intrusion made its appearance. My mother lies on a low couch in another portion of the suite as I sit here in the sultry Iberian dusk trying to draw some conclusions about what we poor human dinosaurs have never been able to come to terms with, the meaning of it all.

In her youth the very antithesis of a religionist, my mother has for the past four years been a practicing Escribieña. She was converted during a great translators' rally—proselytizers for Escribienismo are called, with both intended and unintended irony, *translators*—in Nairobi's brand-new Kenyatta Complex; and it is at my mother's fervent invitation that I am here in Spain.

Once a haven for vacationers, this hotel now belongs to the Escribieño movement; with the faithful, it has a stature comparable to that of the Temple of Jerusalem. The only decorations in all the corridors and rooms are full-color reproductions of the alien graffiti (a term I dare not use in the presence of believers) that have manifested since the advent of the phenomenon and of which my organization in Geneva has a firm, unchallenged record. However, only one such reproduction may hang in any single room—but more in a suite, the number dictated by the suite's size. To encourage reverent contemplation, the reproductions are spaced at three-meter intervals on the walls in the well-lit corridors. One cannot go anywhere in this former hotel without feeling like a neophyte who may look upon the icons of the faith but who has not yet received the picklock to its arcana.

Every barefoot Escribieño wears a snowy burnoose. Women and men alike veil their faces. Hand-holding is *de rigueur*, but bodily contact may not go beyond that obligation except within marriage, and even then only on the manifestation dates of especially revered theophanies. All these practices stem from the nature of the alien graffiti that power the

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religion. Because the meaning of vagrant intrusions remains veiled, Escribieños veil themselves. They touch and permit touching only after the fashion of their beloved icons, and they are empowered by their faith to strike out at anyone who seeks an intimacy beyond what they themselves desire.

Escribieños regard patience as the chief human virtue, and proselytizing as the most virtuous Escribieño activity, for the two central tenets of their doctrine are that the One True Translation of their enigmatic icons will one day reveal Itself and that this event will not take place until every living person has joined them in self-extinguishing contemplation of each new theophany and of the whole theophanic record to date. Translators, incidentally, are not those who claim to know the meaning of specific intrusions, but those who remain most selflessly open to the deeper nuances and subtleties of the entire phenomenon. Not too paradoxically, then, there exist Hindu, Buddhist, Jewish, Christian, and Moslem devotees of Escribienismo. At sacred functions, they are not excluded or discriminated against unless they insist on boorishly sectarian interpretations of various intrusive events.

I spent the afternoon with a thousand Escribieños on the beach in front of the hotel. (Or, rather, the Contemplation Center.) I lay on a lounger beside my robed and veiled mother, myself clad in garb identical to that of every other pilgrim, waiting for a sample of alien graffiti to unscroll above both us and the sea, unscrolling like a gigantic bolt of lacy blue silk at our naked feet. Some of those around us prayed, some kept heroic vigil, and some, being human, fell asleep in the sun and either amused or annoyed us with their snores. I held my mother's hand and also that of a Nepali businessman who had converted—in a Hindu context and ceremony—only a few months ago. This man and my mother were among those who neither slumbered nor slept, but the faithful proved no better at predicting the arrival of a VI than my colleagues in the Department of Forecasting and nothing of seraphic import occurred. By early dusk, even the most devout among us had begun to weary of our mass Lounge-Out; and our leaders, taking pity, called us in.

Tomorrow, we go again. Once past my mother's invitation, I do not fully understand why I am here or why I am readying myself to surrender a second time to a ritual that by all rational criteria seems so senseless. I, as well as anyone, know the unlikelihood of an intrusion's occurring at a spot already visited—statistics tell us that such manifestations are prohibitively rare—and also of our ever rendering from either the phenomenon in general or any individual instance of it a "translation" of universal and enduring human import. But I remember past theophanies, beautiful midnight exfoliations, great terrible letters burning above our deserts, inarticulate parables of hope illuminating the walls of crypts or

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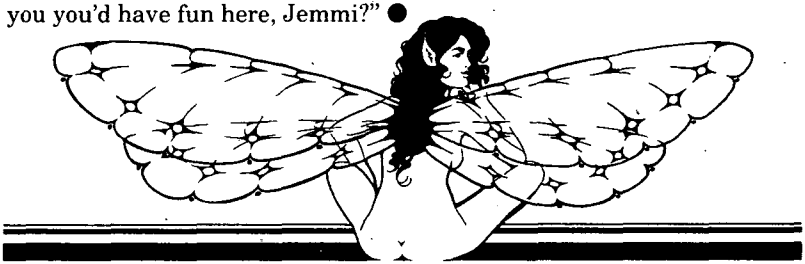
subways, brief *billets-doux* from God-knows-who and who-knows-where glittering over a Venezuelan tepui or an Algerian tenement; and in spite of what I know and in obedience to what I remember, I am here to celebrate my ignorance and to purge my heartache.

"How wonderful," my mother murmurs from her couch. "Didn't I tell you you'd have fun here, Jemmi?" ●



NEXT ISSUE BOX

You can go to Hell in our next issue—courtesy of Hugo-and-Nebula winner Robert Silverberg. In our July cover story, "Gilgamesh in the Outback," Silverberg takes us beyond the veil of death to Hell itself—and a lively and surprising place it turns out to be, too, chockablock with the most famous of the Departed, all of whom meet and interact in the most surprising—and unexpected—of ways. You won't soon forget, for instance, what happens when Gilgamesh meets H.P. Lovecraft and Robert E. Howard . . . and that's just for openers, in a fast-moving and fascinating yarn that also features Genghis Khan, Dr. Albert Schweitzer, Mao Tse-tung, Ernest Hemingway, and Prester John. In one of those moments of serendipity that makes editing interesting, Silverberg's manuscript crossed paths on our desk with one of Avram Davidson's delightful Adventures in Unhistory articles, this one about the legendary Prester John, who also plays a featured role in Silverberg's story . . . and so, as fate seems to decree, our July Viewpoint is Avram Davidson's "Postscript on Prester John," the first Adventure in Unhistory article to appear here in too many years.

Also in July, hot new writer Walter Jon Williams returns with "Video Star," a hard-edged and hard-hitting look at the gritty underside of future society; Andrew Weiner treats us to some literally out-of-this-world music in "The Band from the Planet Zoom"; Molly Gloss tells the bitter-sweet story of "Wenonah's Gift"; and in the aptly-titled "Something Rich and Strange," R.A. Lafferty spins a very funny yarn about aliens and . . . teeth. (Yes, *teeth*. And damn *big* teeth at that.) Plus our usual columns and features. Look for the July issue on your newsstands on June 3, 1986, or subscribe today and be sure to miss none of our upcoming issues.

Coming soon: Major stories by Lucius Shepard, George R.R. Martin, Connie Willis, Nancy Kress, Kim Stanley Robinson, Orson Scott Card, Frederik Pohl, Avram Davidson, Harry Turtledove, Ian Watson, Karen Joy Fowler, Jack McDevitt, and many others.

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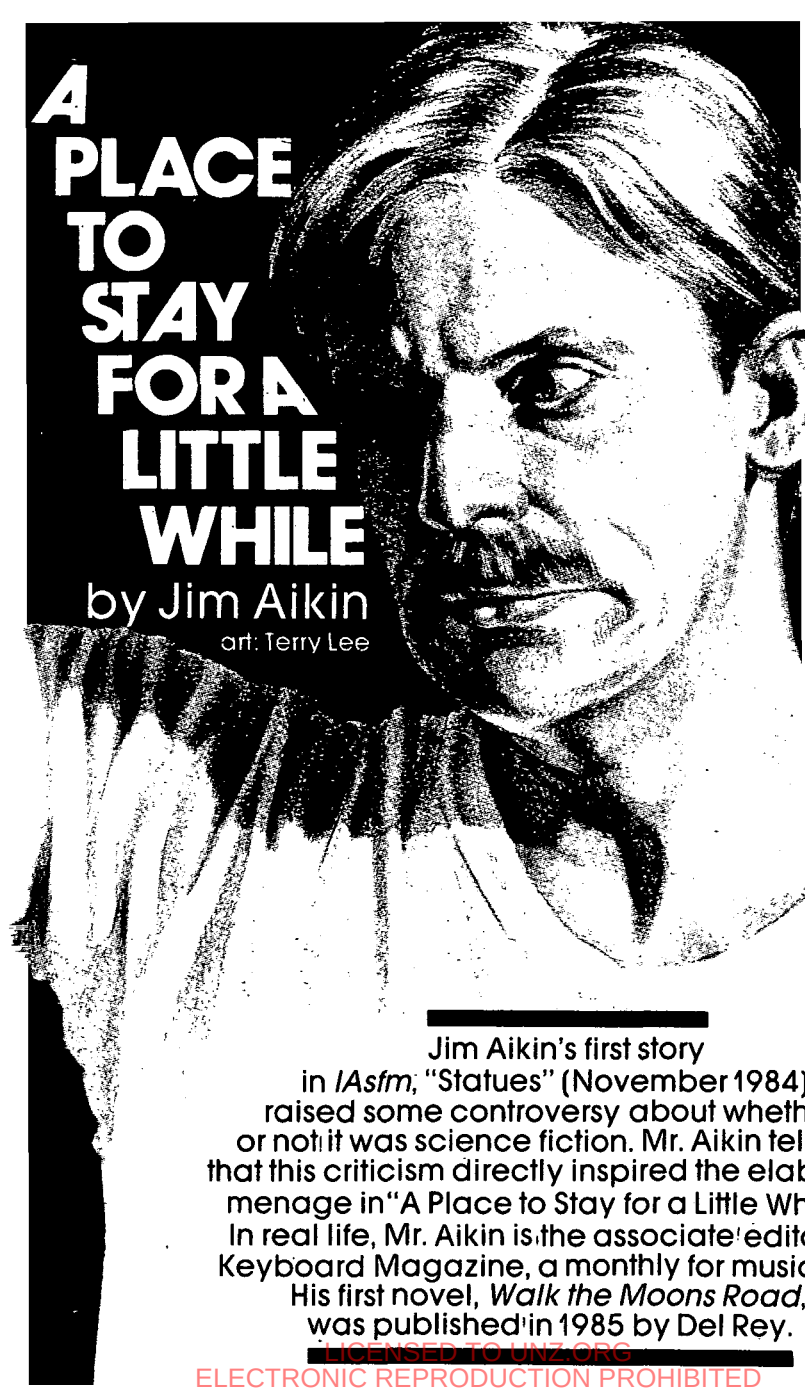

A PLACE TO STAY FOR A LITTLE WHILE

by Jim Aikin

art: Terry Lee

Jim Aikin's first story in *IAsfm*, "Statues" (November 1984), raised some controversy about whether or not it was science fiction. Mr. Aikin tells us that this criticism directly inspired the elaborate menage in "A Place to Stay for a Little While." In real life, Mr. Aikin is the associate editor of Keyboard Magazine, a monthly for musicians. His first novel, *Walk the Moons Road*, was published in 1985 by Del Rey.

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"I can't cope," Cynthia Lutz said to the radio. "I simply cannot cope."

"Oh, come on," the radio said. It was a wooden table model that dated from about 1933. "Things aren't that bad. Things have been this bad before."

"When?" Cynthia snapped.

"Well, they must have been, some time or other," the radio said evasively. "How would I know? My memory isn't worth a damn. What do you expect from vacuum tubes?"

"I've never been turned down for welfare before, that's for sure." Cynthia pushed long loose gray-streaked hair away from her bony face and paced up and down in the kitchen, sandals slapping on the worn linoleum. Her toes were calloused and her jeans were frayed. "They told me I make too much money. Too damn much money selling candles, do you believe that? And I can't explain to them that I've got five dependents, or this place will be crawling with social workers, and you know what'll happen then. They'll lock Mrs. Simpston up and send Debby to a foster home and deport Mr. Alvarado, and probably put Toby in a hospital and arrest me for sanitary violations or something. So how am I supposed to feed this menagerie?"

"Fortunately, I require no sustenance," the radio said smugly.

Cynthia narrowed her eyes at the faded grille cloth. "Oh, yeah? What if I can't pay the electric bill?"

"I'm sure it won't come to that," the radio said uneasily. "You'll think of something."

"Your faith is touching." Above a teetering pile of dishes in the sink, an open window let in afternoon breeze through a green tangle of vines. The radio was sitting squarely on the big table against the opposite wall. Cynthia eyed the dishes with distaste, and transferred her attention to the refrigerator. She had left an apple in there. . . .

"There is one other thing," the radio reported.

"What?" She squinted at the naked white interior of the refrigerator. Peanut butter. Not quite half a jar.

"Somebody new. He'll be here soon."

"How soon? And what's his problem?"

"That's all the information I'm getting. Sorry."

"You're a big help. As usual."

"I do the best I can. I'm only a radio."

II

The street was quiet and shady. Here and there tree roots had buckled the sidewalk. He was walking aimlessly, content to let his feet lead the

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way, whistling soundlessly between his teeth and wondering what it would be like to live in one of these big old houses year after year instead of knocking around on the road. His name was Steven Raleigh, and it had been four months since he had last used his terrible power.

At the attic window of one house he saw a pale shape that moved and was gone, leaving a curtain swaying. He stopped and looked up at the window, shifting the duffel bag on his shoulder, but the shape failed to reappear. The house was a little more decrepit than its neighbors; the paint was badly peeled, and nobody had swept the dead leaves off the porch roof, and long spears of grass had grown up around the bone-dry birdbath. It looked like the kind of place where they could use some odd jobs done. On impulse, he stepped long-legged over the low picket fence and climbed the creaking steps to the porch.

He started slightly when he saw the old man sitting in deep shade on the porch swing. The old man stared straight ahead, not noticing Steven at all. He was a small, frail-looking old man wearing a threadbare but immaculate three-piece suit and a cream-colored hat that had been very fashionable forty years before.

"Excuse me," Steven said.

The leather face turned slowly toward him. "You wish to speak to Cynthia," the old man said in the meticulous accent of a Mexican whose English is very good. "She is inside." His hand twitched on his thigh, a gesture much too small to be called a jerk of the thumb, and his face rotated slowly away again.

Steven rapped on the glass pane in the door, and when nobody came he turned the knob and stepped inside. The hallway smelled of dust and cooking and scented candle wax. "Anybody home?" he called.

Cynthia Lutz set down her peanut butter sandwich and headed for the hall. She saw a slim, well-knit young man with a badly trimmed crop of fine blond hair, an expressionless mouth, and wary, haunted eyes. He was wearing boots, jeans, and a work shirt. He thumped the duffel bag to the floor and looked at her uncertainly. "Let me guess," she said, setting her hands on her hips. "You turn into a penguin."

"You shouldn't make jokes with me," he told her.

"Oh. I'm sorry. Why not?"

"Never mind. It's not important. I thought maybe you had some odd jobs you needed done."

She put back her head and laughed. "Is that what you thought? There's plenty of work to be done, all right, but I haven't got a cent to pay you. Not a cent. Would you like something to eat? Anything you like, as long as it's peanut butter. I could make you a peanut butter sandwich."

When he had washed down some sandwich with a swig of the straw-

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berry Kool-Aid she found gathering dust on a top shelf, he said, "Why feed me? You don't know me."

"I take in strays." She was sitting across from him, admiring his healthy appetite. "What did you mean when you said I shouldn't make jokes?"

"Did I say that? I didn't mean anything." He ran his finger through a ring of the Kool-Aid, smearing it across the table.

"I think you meant something."

"Just that it might not be safe. When I get mad, I do things, sometimes. But don't worry," he added, holding up a palm, "you're safe. I won't do anything. I promise."

She chewed on her lip. "What kind of things do you do that aren't safe?"

"It's hard to explain. It doesn't matter."

"It does matter. You think I won't believe you, if you tell me. You think nobody could possibly believe you."

He gave her a smoldering look from under his eyebrows. "You'd believe me all right, if I showed you. But I don't dare." He took a big bite of sandwich and chewed purposefully.

"Why do you think you came here?" she asked conversationally.

"I told you. Looking for odd jobs."

"Stopping at all the houses? Or did you just come straight here and walk in the front door?" Outside the window a hummingbird was nuzzling among the vines. She watched until it darted away.

"I didn't stop at every house, no."

"Something about this house in particular attracted you. Shall I tell you what it was?"

He shrugged. "You're talking."

"It was me. I attract people. But not just anybody. People who have strange gifts. People to whom things happen, things that can't be explained. If you weren't one of those people, you wouldn't be here."

"I don't know what you're talking about."

She took a sip, without asking, of his Kool-Aid. "You saw that old man on your way in?"

"Sitting on the porch staring off into space."

"That's Mr. Alvarado. He's resting. Would you like to know why he's resting?"

"I guess so."

"Mr. Alvarado patches up the holes in the world. It's hard work. In between times, when there aren't any holes that need patching, he stays here. When a hole opens up, he senses it somehow, and he has to go off and patch it. He's never been able to explain very well *how* he patches holes, but he did tell me once that he's one of two or three hole-patchers

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left in the world. Maybe the only one left, by now. When they're gone, the world is going to come apart. He couldn't explain that very well either, but I have a feeling it may be serious. Anyhow, he takes it seriously. That's why he's resting. It's hard work patching holes, and he's eighty-three years old."

Steven made motions with his mouth, as though rolling the idea around on his tongue, or possibly cleaning peanut butter off his teeth. "You're kidding," he stated.

"I'm not kidding. I hope he's wrong about the end of the world, but I believe he does what he says he does. He's not the strangest person here."

"You're putting me on. That's crazy."

"Any crazier than the situation you're in?"

"I don't want to talk about that."

"Suit yourself." Cynthia shrugged. "You belong here. That much is obvious. We've got an empty room you're welcome to. All it's got is a mattress. Nobody will steal your stuff. The house rules are simple." She ticked them off on her fingers. "Don't pay any attention to anything Mrs. Simpston says; you won't be able to understand one word in three. Under no circumstances go into the attic—the person living in the attic does not like visitors."

He remembered the vague shape at the window.

"If you hear loud noises or see flashing lights, ignore them. Likewise for people walking through walls or floating around a foot off the floor. Don't annoy Mr. Alvarado. And as of this afternoon, if you want to get fed, go out and hustle yourself some grub. The hostess is flat broke."

After looking at her for a minute with his hands half-curled in front of him on the table like an exhausted boxer, he stood up. "I've gotta think about this. Can you show me where the room is?"

III

The mattress was thick and soft, and the blanket that went with it smelled of wood smoke. Steven Raleigh had walked a long ways. In a few seconds he was asleep.

An hour later he woke to a presence in the room—gentle breathing, the rustle of a garment. He lifted his head. The intruder's eyes met Steven's for a startled moment, then dropped to the floor. The longish untidy hair and pale hollow-cheeked face could have belonged to either a man or a woman. The contours of the body were concealed in a shapeless bathrobe.

"Oh, I'm sorry. I didn't mean to wake you." The voice was a husky

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contralto. "Cynthia said we had somebody new, and I wanted a look, that's all. I'd better go."

"No, don't." Steven raised himself on an elbow. "Stay a minute."

"I can't. Cynthia won't like it." But the figure lingered.

"Do you live here?"

"I live in the attic. But you won't see me. I don't come down much."

"What's your name?"

"I don't know. I kind of like 'Toby.' Mostly that's what they call me."

Toby's head cocked sideways, asking a silent question, and Steven remembered the posture. Her name had been Laurel, and she had looked at him just that way, standing in the darkened living room of her parents' house, that first night when she invited him into her bedroom. Laurel's voice echoed across the years: "Listen—do you want to make it, or what?" He hadn't thought of her for a long time, and the memory flooded in with an unexpected ache. There had been lots of other women since. It was easy; it didn't matter whether they wanted to or not. But with Laurel it had meant something, because that was before the power came to him.

"Are you all right?" Toby asked.

"Fine. I was thinking. You remind me of somebody I knew a long time ago."

Fear flashed in Toby's eyes. "Oh, no, it's starting already. I really do have to go. I can't afford to stay around you any longer."

"Why not? I won't hurt you."

"It's not you, it's me. Whenever I'm around somebody, I change. I can't help it. I'm sorry. I have to go. Goodbye." The figure slipped out the door.

Steven sat up and rubbed his neck. "I change," Toby had said. What the hell did that mean? Still, the woman was right—the inhabitants of this house were strange. He pulled on his boots and clomped down the stairs. There wasn't much furniture, and what there was had seen better days. The stained glass above the window seat had a forlorn look of lost elegance. On the sagging couch a large brown dog was asleep. As he went by, it lifted its head and blinked amiably at him.

Entering the dining room, he thought it was empty, but a voice halted him. An old woman said, "Twenty of them. My, my. How nice for you." She was sitting on a straight chair against the wall, a little round woman with wispy white hair and twinkling, if somewhat rheumy, eyes, and she was smiling and nodding at a point up near where the chandelier would have been, if there had been a chandelier.

"Hello," Steven said.

"Oh. Oh, goodness, you frightened me. Orlanoi was just showing me the flaming chariots of the Eastern Kingdom. What a spectacular sight! I do declare!"

"You must be Mrs. Simpson."

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"Simpston. With a 't.' And who might you be?"

"My name's Steven Raleigh. I just got here." He leaned forward and spoke loudly and distinctly to her, a courtesty to which she did not seem averse.

"Oh, that explains it." She smiled and nodded.

"Explains what?"

"The purple and silver robes, of course. You've been traveling."

He looked at his shoulders. Nobody had come up and draped purple and silver robes around him. "Have you seen Cynthia?" he asked.

"I believe she's at the palace."

Steven considered this. "Oh." He went on into the kitchen.

Cynthia was at the sink, her sleeves rolled up, steam roiling thinly around her. "I met Mrs. Simpston-with-a-tee," Steven said. "And Toby."

"Toby."

"Toby came to my room."

"Toby's not supposed to do that," she said, pressing her lips together.

He sat down at the table. "What was that you said before about us having to find our own food?"

Scrubbing a saucer savagely, Cynthia said, "And when she got there, the cupboard was bare. You heard right. We're going to have a meeting in a little while, as soon as I get things cleaned up, to talk about it. Want to come?"

"Yeah. I'd like to meet everybody."

"If they're here, you'll meet them. Sometimes I can't find Frank."

"Frank?"

"Frank Reeves. He has a tendency to fade."

"He's the one who walks through walls," Steven said, making the connection.

"Right. It's an effort for him to become visible. About three times a week I go up to his room and bang on a garbage can lid and yell at him until he condescends to condense, or whatever it is he does. I'm afraid if I don't do it, he'll evaporate completely."

"Must be tough." Steven sat and stared at a tattered poster on the wall. Under a green spray of marijuana was the legend, *Let A Thousand Parks Bloom*. "You don't expect me to believe any of this," he said.

"Believe what you like. Or better still, talk to the radio. That might do the trick."

"The radio." He saw it for the first time.

"I can't offer him any proof," the radio said. "Why should he listen to me?"

"Don't worry about that," Cynthia counseled. "Just talk to the nice man."

"What should I say?"

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"Hey," Steven said. "This thing's *talking*."

"Mm-hmm," Cynthia said agreeably, turning back to her dishes. "Are you beginning to feel less alone?"

Steven stared at the radio, breathing through his mouth. "You've got wires hooked up somewhere," he declared. He craned his neck to look under the table, stretched out an arm to pull the plug and examine it, and after replacing the plug straightened up and lifted the radio in both hands to look at the tabletop under it.

"Hey, don't do that!" the radio protested. "Put me down! Some of my components are *very* fragile."

He glared at the radio, then set it down gently. "That doesn't prove anything. You could have a transmitter hooked up inside of it, and a receiver in another room."

"Just to fool you?" Cynthia asked sarcastically. "Come on."

"Okay. Okay. You've got a radio that talks. You've got a guy that fixes holes, and a guy that walks through walls. What else have you got?"

Wiping her hands on her apron, she turned. "No. You first."

"Well, at least tell me what it is about *you*. You read minds, or you're a thousand years old, or something, right? What is it?"

"Nothing that exciting. As far as I can tell, I'm depressingly normal—except that I attract people who aren't. Nobody has walked into this house uninvited in a long time who wasn't some kind of a case. That's how I knew about you. So tell. What is it?"

He swallowed with an effort. "I control people."

A cold lump congealed at her stomach, and her scalp prickled. She looked at him silently, measuring him. This one could be dangerous.

"I don't do it very often. I try not to."

"Why try not to?"

"I start to like it. It feels good. Like a drug."

"So you try not to."

"It's been four months."

"When you say you control people, what do you mean?"

"I control them, that's all. I give them orders, in my head, in a certain way, and they do whatever I say. They don't have any choice."

"Show me," Cynthia said impulsively. "Make me do something."

He shook his head slowly and gravely. "I don't dare. Didn't you hear what I said? I might start to like it."

IV

There were seven of them around the table (eight counting the radio), Mrs. Simpston smiling and nodding in her black dress, Toby chewing

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slender fingers and darting dark looks this way and that, Mr. Alvarado sitting very still and erect with his hat in his lap, Cynthia Lutz, Steven Raleigh, and two people Steven hadn't encountered yet. Cynthia introduced Debby Weibel, a solemn, fidgety girl of nine or ten who looked like she was about to kick somebody, and Frank Reeves, an unremarkable middle-aged man who sauntered in through the door without bothering to open it. "Okay," Cynthia said without preamble, "here's the situation. We've got no money, and no food. Any hot ideas?"

They looked at one another uneasily. "We could help you make some more candles," Frank Reeves suggested. Reeves appeared to be sitting in a chair, and Steven found himself wondering whether this was an act put on to put the others at ease, or whether Reeves could solidify himself when necessary. Probably the latter, Steven decided. It would be too hard to maintain a sitting posture if you weren't sitting on anything.

"I'm counting on you to help with the candles," Cynthia said, "to pay next month's rent. But business is slow. Anyway, the street fair isn't until Saturday, and we're out of food *now*. Next?"

Debby Weibel started to cry. At the same moment the room was filled with large green sparks and a huge buzzing groaning noise that swooped up and down several octaves while pulsing painfully. "Debby, honey," Cynthia yelled, going over to the girl and squeezing her shoulders, "please try to control yourself. It's okay. Everything will be all right. Go ahead and cry if you want to, but please try not to make any of the big noises. Okay?" Snuffling, Debby nodded. The sparks faded and winked out, and the horrendous sound dwindled until it merged with the hum of the refrigerator. Steven realized he had been sitting on the edge of his chair. The sound affected him the way a dentist's drill did. He took a breath and relaxed.

The kitchen door swung open and the dog floated in, all four paws dangling limply a foot above the floor. The dog, Steven noticed now, was not only large but rather fat. "Come on in, General," Cynthia said. "Join the party. How would you like to hunt some rabbits?"

"Woof," said General helpfully. His tongue lolled out.

"I suppose I could apply to the county," Mrs. Simpston ventured. "Not that I like to beg, you understand, but I should like to do my part."

Cynthia shook her head. "We've been through that before. If Orlanoi happened to drop by while you were at the welfare office, they'd take you down to the county hospital and probably use electroshock on you. You wouldn't like the county hospital at all."

"I know, dear. It must be so hard on all of you, not being able to see the world as it really is. I don't blame you for getting confused."

"Why can't Mr. Alvarado apply?" Steven demanded. "He looks like he could cope."

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"Among other things, he's an illegal alien," Cynthia explained. "Why don't you apply?" she countered.

"No identification. Also, I'm wanted for questioning."

There was some more silence.

"Pardon me for interrupting," the radio said, "but couldn't you work out a plan whereby Mrs. Simpston or Mr. Reeves could distract a grocery clerk while the rest of you take things off the shelves and put them in your pockets?"

"I hope we're not reduced to that," Cynthia said. "It's not a long-term solution. Sooner or later we'd get caught."

"You could plant a vegetable garden," the radio suggested.

"Gardens take months to grow, wirehead. We're talking about imminent starvation."

The little girl started to snuffle. Cynthia patted her absently.

"Isn't there some sort of charity dining room downtown?" Reeves asked.

"I'd thought of that already. It's ten miles, and we don't have bus fare. It would take so long to walk back and forth we'd end up down there living on the street. Anybody ready for that?"

"I have some money," Mr. Alvarado announced quietly. "A little money."

"No, Mr. Alvarado," Cynthia said gently. "What if you need it to get to the hole next time? What if you have to take a plane?"

"I do not like to see my friends in need. I will find a way to get to the hole. I will walk."

"No, Mr. Alvarado. What you're doing is too important."

"Nothing," he said with quiet vehemence, "is more important than helping my friends."

Steven sat forward. "Wait a minute. If he's willing to make a sacrifice like that, what am I doing sitting here on my butt?" An aside to Mrs. Simpston: "Excuse the language, ma'am." To the table at large, "I just got here, but I'd like to stay for a while, if it's all right with you folks. And if we've got to have some food, I'll get us some food. You," addressing Frank Reeves, "can you carry stuff without it slipping out of your hands?"

"It takes a little concentration, but I can manage."

"Okay, so you come—and you," nodding at Cynthia. "We're gonna get us some groceries."

V

I don't think we ought to be doing this, Cynthia told herself. It felt real bad. Not the stealing—she could live with that. She was worried about what it would do to Steven. She didn't like the spring in his knees,

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or the way he breathed through his teeth. But with all those mouths to feed, what choice did she have?

Steven was buzzing with reckless energy. Pushing the cart down the aisle while Cynthia selected boxes and cans, he felt his stomach twitching. Large, soft things that had been securely moored inside him had come loose and were drifting in the dark, bumping into the walls. But could he even do it after all this time? What a mess if they got up to the checkout counter and it didn't work! A fat woman was inspecting an apple, and he focused on her. She put the apple down, picked up an orange, tossed it high in the air, caught it, and set it down among the bananas. Oh, yes. Oh, yes. His whole body tingled. The woman was looking around in embarrassment and confusion. Steven winked at her.

"I think that's everything," Cynthia said a couple of minutes later. "Are you sure this is going to work?"

"I'm sure."

They had two heavily laden carts; Frank Reeves was pushing the other one, frowning in concentration at his hands. "How do you shave?" Steven asked.

"It's tricky."

They stood waiting while a disinterested woman ran the groceries across the scanner. Cynthia noticed she was wringing her hands, and pulled them apart and wiped them nervously on her pants. "That comes to two hundred forty-two seventy-seven," the woman said at last.

We've already paid you. Give me the change. Those are the ones, in that slot.

Cynthia gasped. The woman was counting ten-dollar bills into Steven's hand, thinking they were ones. He tucked them into a pants pocket.

"Do you folks want help out to your car with this stuff?"

"We can manage," Steven said.

There were too many sacks to carry, so they loaded a cart and Cynthia pushed it while the men carried two sacks each. When they had walked half a block Cynthia said, "That's frightening. You can do that any time you want to?"

"Sure. It's easy. Pretty nifty, huh?" He grinned, pleased with himself.

"But what about the clerk? She'll come up three hundred short at the end of the day."

"Yeah. So what?"

"So she could lose her job, that's what."

Steven tried to meet her gaze and failed. "You're right," he admitted sourly. "See, that's the trouble with it. I always end up hurting people."

"Well, couldn't we have just loaded up the carts and wheeled them out the door without going past a cash register? I don't want to seem ungrateful, but . . ."

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"That's too complicated. I'd have to control ten or fifteen people at once, to keep them from noticing. I'm not that good. The best I could manage would be to make them all fall down so they couldn't follow us. They'd still call the police, and the police would get a description of us. So it wouldn't work. This way is a lot safer."

"Except that you may have cost that woman her job."

He looked at her coldly. "*We* may have cost that woman her job. You're gonna eat this stuff too, so don't get on your high horse. Anyway, would you rather have used Mr. Alvarado's plane fare?"

She sighed. "I guess not."

They walked along in silence for a while. The tingle had worn off, and Steven was beginning to feel depressed. After what had happened last time, he had promised himself he would never use the power again. It only led to trouble.

But hell, he wasn't responsible for the whole damn world, was he? If that woman didn't get fired today for losing three hundred dollars, she'd get fired tomorrow for showing up drunk, or something. What difference did it make?

The difference, his conscience pointed out, is that you wouldn't be the one making her get drunk. But it's not my fault! he protested. I didn't ask to have this power! To escape this oppressive line of thought, he said to Cynthia, "Tell me about the radio."

"Well, it's a nice old radio. I'm fond of it, even if it doesn't have much to say."

"It just wandered in, the way I did?"

"Not exactly. We've had maybe two dozen different people staying with us at one time or another. For a while there was this nice old guy—a farm hand from Missouri, he could barely read or write—who did things to machines. He never touched them; all he did was stare at them."

"You mean he could fix things that were broken?"

"It wasn't quite that simple. What things did after he got done with them was never exactly what they'd done before. The trouble was, he couldn't control it. He never knew ahead of time what would happen. Anyway, somebody had given us an old radio that didn't work, and I asked him if he couldn't see about fixing it up somehow. He was tickled pink when it started to talk—said he'd never gotten anything to do something like that before."

"What happened to him?"

"We had an old car sitting in the driveway, and whenever he got tired of playing checkers with the radio he'd go out and stare at the car. One day he announced that he'd got it running and was going to take it out for a spin. We haven't seen him since. I figure the first time he tried to make a left turn, he took off into the fourth dimension."

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VI

"You know, I'm starting to like it here," Steven said. He was sitting at the kitchen table snapping green beans the way she had shown him and throwing them in a pot.

"We like having you," Cynthia said. "You've been a big help."

"I could do a lot more. I could get you a car, and some good furniture, and some nice clothes. Maybe if Debby had a piano and some piano lessons, she'd stop making those damn noises."

"That's sweet of you, Steven. But we already have everything we really need. I thought you didn't want to use your power unless it was an emergency. You said it did something to you."

"I can handle it," he said in a surly tone. "I *want* to help. Why won't you let me help? You didn't mind when I got that money last week for Mr. Alvarado."

"Helping Mr. Alvarado is important. But I don't know. Maybe you shouldn't have done that either."

Mr. Alvarado had announced one morning that he must be off within the hour. Cynthia had packed some sandwiches for him, and Steven had slipped out and hit a couple of stores in a nearby shopping center. When he pressed the bills into the old man's hand, Mr. Alvarado said, "Gracias, amigo," and even though the glorious buzz from using the power had already worn off, leaving Steven bleak and gloomy as usual, Mr. Alvarado's "gracias" made him feel good again. But now Cynthia was saying he'd done something wrong. He pushed back the chair and got to his feet.

"Where are you going?"

"Out."

"You aren't going to—do anything to anybody, are you?"

"What if I am? Maybe I need to keep in practice. You don't expect me to stay cooped up in here all day."

"I thought you said you liked it here. I just don't want you to get in any trouble."

"I can take care of myself."

But he didn't go out. He knew she was right—every time he used the power he felt dirty afterward, and defeated. Instead he went upstairs to his room and lay down on the mattress with his fingers laced behind his head and stared at the ceiling. Why did it have to be so complicated? All he wanted was to have that feeling flowing through him like a soft fire, the thrill of being absolutely in command. Things had been simpler once. There had been other ways to feel good. Playing touch football. Staying up late to watch a meteor shower with his dad, sitting out in the back yard in the dark with the fireflies buzzing around. And those few times with Laurel. Laurel had liked him a lot, and he had been crazy about

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her. No telling where she was now. Married, probably, with kids. He remembered the silky contours of her body sliding over him, the delicate fragrance of her sheets, the sound of a moan catching in her throat. Tears stung his eyes. He was alone. Even in a house full of people who ought to understand, he was alone. Cynthia didn't understand, she just wanted to keep him penned up so he wouldn't get into trouble. Besides, she was ten years too old for him, and she didn't do anything to make herself sexy. Didn't even shave her legs. Now, Laurel . . . The closest he'd get to Laurel in this house was Toby. He hadn't seen Toby since that first day, but he remembered vividly how Toby had reminded him of Laurel. The more he thought about it, the clearer the resemblance became. At last he rolled to his feet. It couldn't do any harm to get another look, could it?

He climbed the narrow attic stairs and tapped on the door. "Who's there?" came the husky contralto.

"Steven."

"Go away."

"I wanted to talk to you."

"Talk to somebody else. Talk to the radio."

"You're not being very friendly," he chided.

"I can't afford to be friendly."

"It must get lonely, living up here."

There was no sound on the other side of the door.

"I got to thinking about that girl," Steven said, leaning his cheek on the wood. "The one you remind me of. You do look like her, just a little. She was real pretty."

"I don't look like her," said the voice. "I don't look anything like her. Now go away. Please."

"Do we have to talk like this? Can't you let me in for a minute? I won't hurt you."

Again there was silence. Bitterly, Steven slammed his fist into his palm. Shut out again. They were afraid of him. And he hadn't done anything to deserve it this time, not a thing! Why should he have to put up with this crap? *Come open the door.*

Soft footsteps, and the door swung open. The first glance shocked him—Toby looked nothing at all like Laurel. He brushed past the unmoving figure. "I wanted to see where you live," he said. The attic was warm and musty-smelling under the sloping roof. An unmade bed stood against one wall. There were two small curtained windows, one at the front of the house and one at the back.

"Did you make me open the door?" Toby asked.

"What if I did? Is that such a crime? I wanted to see you."

"You've seen me."

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"I remembered you looking different."

"I always look different."

"Stand over there where the light's better," Steven directed. "Tilt your head a little. That's it. You *do* look like her." Even though he wasn't using the power, Toby seemed to have no will, and obeyed like a mannequin.

"I don't look like her. At least, I didn't. I'll start to before long. The longer you stay, the more I'll look like her. I change."

"Like a chameleon," he said. "So that's why you have to stay up here."

There was a tattered overstuffed chair by the front window. Toby sank into it. "Whenever I'm around somebody I start to turn into whoever they love. I can't help it. If I stay around them long enough, I become their ideal lover."

"You mean it's some kind of illusion? They look at you and think they're seeing somebody else?"

"No, it's a real physical change. My body molds itself according to whatever is in the other person's unconscious. Even my sex changes. Around you I'd become a girl. I can feel it happening already. Once it gets started, it happens very fast."

Steven squinted at Toby's face in the washed-out light from the window. Already it hinted at Laurel's. The cheeks and mouth were filling out, and the hair, black a moment before, had an auburn highlight. "It must be frightening," he said, "to lose your identity like that."

Toby laughed humorlessly. "What identity? I thought I had an identity once, but it was only a cruel trick. Before I came here, I lived with a man named Tom Kittredge. He kept me locked up. He must have known what I was, but he never told me. I thought I was his wife. But then one day he didn't come home, and I started to get scared. After a while I ran out of food, and he still hadn't come, so I climbed out a window.

"When I got out on the street, I started changing. I was sure I was going crazy, because as far as I knew, I was Kitty Kittredge, but when I saw my face in a store window it was—it was *melting*." Toby put a hand to the cheek and jaw and stretched the skin. "That was a bad time. I don't remember everything that happened. I think I was in a hospital for a while, but then I wasn't, I was just wandering down the street, and Cynthia found me.

"Once I'd had a chance to sit here by myself for a while and think, I figured out how it is for me, how I have to live. Maybe understanding that counts as an identity, or anyway a piece of an identity. But I still don't know who I might have been before I was Kitty Kittredge. I'm not even sure I'm human."

The voice had grown higher and more animated as Toby talked. The nose had shortened and acquired a faint dusting of freckles. Steven felt

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a spasm of desire. "Don't do that," Toby said. "I can feel it. It goes through me like a wave. You'll have to go." But the protest had no force.

"How is it any better living like this—" Steven sat down on the bed and waved a hand at the attic. "—than living with a man thinking you're his wife? You're still a prisoner."

"At least this way I have my own thoughts. That's something very precious, that maybe you don't understand. If I become your friend, the one you're remembering, I'll lose whatever identity I have. I'll start to think I'm her. I'll want to be with you all the time, and make you happy. Making you happy will be the only thing that matters to me. And that's not right."

His groin was throbbing. As he stared, fascinated, the figure in the overstuffed chair flowed like a lump of wax under a sculptor's fingers, becoming less Toby and more Laurel. The arms were plumper now, and tanned. The hair was longer and lighter, the eyes set wider in a rounder face.

"Don't. Please don't. Please go away." But it was Laurel pleading with him, not Toby. The shapeless bathrobe fell away from a smooth thigh.

Come over here. Sit beside me. Toby/Laurel obeyed. Tears were streaming from the eyes, and they were Laurel's gray eyes. He touched Laurel's cheek with his fingers. "Don't be afraid," he said. Erotic excitement and the thrill of control surged in his blood. "I won't hurt you. It'll feel good, I promise. I know how to make it good for you."

"Oh, please . . ."

"Laurel. Laurel, honey." He kissed her neck. The perfume was Laurel's. He spread the robe open so it fell around her waist, and they were almost Laurel's breasts. He kissed her mouth, and her lips parted and her tongue darted out, seeking his. He lay back on the bed and drew her over him so the long auburn hair stroked his face, and her face was in shadow. *Unbutton my shirt,* he commanded.

VII

"How *could* you?" Cynthia stormed. "After I specifically told you not to go into the attic."

"I don't have to justify myself to you." He ran water in the sink and took a glassful, not to have to meet her eyes.

"Do you have any idea how much harm you've done? We've been working for months at strengthening its personality, so it can be around other people and not start changing. And now this! Anybody else, it knows to keep the door locked. There's only one way you could have gotten in."

"You don't know what you're talking about," he said belligerently.

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"She loved it. You should have seen how happy she was. So I'm happy, and she's happy, and what's *your* beef?"

Cynthia sighed in exasperation. "Of course Toby is happy. The trouble is, it won't stay happy. First it will want to move into your room, to be closer to you. Then it will start following you around. But every time you're with somebody else, it will get confused and start to change again. This has happened before, Steven. Last time it was Mrs. Simpston. Toby turned into an imitation Archangel Orlanoi—you know, the one that visits Mrs. Simpston? She was in heaven, having her Archangel around *all* the time, though she did get terribly confused whenever the real Orlanoi showed up. And I'll admit it was interesting for us to see what it is Mrs. Simpston has been having tea with, all these years. Toby became a Radiant Being.

"Until one afternoon when Mrs. Simpston wandered out into the garden and Toby spent a solid hour in the living room with the dog. When Mrs. Simpston discovered that her Radiant Being now had the muzzle and hindquarters of a Labrador retriever, she had hysterics. She tried to kill General with a fireplace poker. Poor General was so traumatized he hasn't walked a step since. So tell me—how are you going to feel when your 'Laurel' takes it into its head to help me out in the kitchen and winds up with a big black beard like my friend David used to have? Not to mention David's anatomical endowment. What are you going to do then?"

Steven scowled at her. "So what if Mrs. Simpston tried to kill the dog? That's not my fault. I'm just trying to live my life, and I've got as much right as anybody. I don't know why everybody's always blaming me for things."

"Because you're creating problems, dear heart. That's why."

"I don't see any problem. She can stay in the attic, just like always. If we have to, we can padlock the door from the outside."

"Oh, really. How cosy. All right," Cynthia said, spreading her hands, "I'm not going to ask you how fair you think it is that with a being in the house who could give any one of us the complete fulfillment of our erotic fantasies, *you're* the one that gets that being all to yourself. I'm not going to ask you that. And I'm not going to ask you why, when you could have your way with anybody in the world, you pick somebody helpless and vulnerable like Toby, instead of somebody who's strong enough to deal with it. I just want you to think this one over." She leaned forward and spoke with quiet intensity. "You said before that you felt bad about controlling people. But this is worse than controlling. You're completely wiping out another person's life." Her voice rose. "That's not Laurel up there, it's just a projection that originated in your mind. You're destroying everything that makes Toby an individual, and replacing it

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with some kind of phantom out of your own unconscious. Whatever Toby really is, you're killing it. How do you feel about that? How does it feel to be a murderer?"

Go away. Leave me alone.

Cynthia turned on her heel and left the kitchen. Steven slammed his fist into the wall.

"You're certainly causing an uproar around here," the radio commented.

He willed it to burst into flames, but nothing happened. "That won't work on me," the radio said. "I'm an inanimate object."

He was still sitting at the table an hour later, leaning his head on his hand, when Mrs. Simpston toddled in. "Oh, there you are, dear boy. Cynthia asked me if I wouldn't find you. Would it be too much trouble to come out on the front porch and undo whatever it was you did to her? She says she can't come back into the house—and it's nearly dinnertime."

Reaching out with his mind, he found Cynthia Lutz nearby and released her. A minute later, having poured herself a cup of coffee with shaky hands, she sat down across from him and looked at him sorrowfully. "We've got a new house rule," she said. "As of right now. You don't do that to anybody who lives here. Not in any way, shape, or form, and not for any reason. If you ever do that again, you'll have to leave."

"You can't make me leave if I don't want to," he mumbled.

She put out a hand to touch his wrist. "You've been in situations like this before, haven't you, Steven? Wherever you go, sooner or later this kind of trouble starts."

His throat filled with tears. He nodded, mute.

"I'm sorry. I'm so sorry." She wiped her eyes with a finger.

"I only wanted to help with the groceries," he said, choking, "and then I got lonely. You can't blame me for that."

"But once you start, it's hard to stop. Isn't that what you said?"

He nodded, biting his upper lip.

"Steven, listen to me. We want you to live here with us, for as long as you want to. We want to help you learn to control this power, so you can make friends with people. We want to be your friends. Do you understand?"

"Yeah. I guess so."

"But you mustn't use your power on your friends. That's what's hurting you."

"Using it at all is what's hurting me. What difference does it make if it's a friend or a total stranger?"

"Well, there's a difference between using it for good and using it to hurt people." Her eyes glowed. "What if you were a lifeguard at a swimming pool? Nobody could ever drown. You could just sit up in your tower

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and if anybody got in trouble you could take over and swim for them and guide them back to the side. Wouldn't that be wonderful? Wouldn't it?"

"I don't know. What if I decided to drown them instead?"

"You wouldn't do that, would you?"

"I might. Why shouldn't I?" Half to himself, he added, "What's scary is knowing that I *could* drown them if I wanted to. Nobody in the world could stop me."

"That would be very sad. But Steven, I think you're missing something. The reason you need to learn to use your power wisely isn't to keep from hurting other people, though you *can* hurt us very badly. The reason is to keep from hurting yourself. You're the one I'm worried about. I'd like to see you lead a healthy, happy life. And you can *do* it. I believe that. But unless you learn to control the power, it will destroy you."

"I can take care of myself," he said sullenly. But after glaring at the table for a minute his eyes softened, grew troubled. "I don't know, maybe you're right. I gotta think." He struggled to his feet and left the kitchen, his shoulders slumped.

VIII

For the next two days, wanting to prove how cooperative he was, Steven threw himself into yardwork, sweeping the roof and gutters, shoring up a sagging railing, hacking at weeds with a rusty hoe. Three dozen times he glanced up at the attic window, but always it was empty. He knew Cynthia was right, but at the same time he resented her for confronting him. "What does she know?" he muttered. "Hell." At night he lay on his back and stared at the ceiling and envisioned scenarios in which he and Laurel ran away from this place to start a new life together. But in every scenario, he had to use the power again and again, to get them money and a place to stay, to keep other minds with other erotic images away from his Laurel. And he knew that wouldn't work, because he knew what using the power did to him. The only way to keep Laurel isolated without using the power was to stay here—and as long as he stayed here, he couldn't see her at all. There she was, a few feet overhead, untouchable. He shuddered and wept in frustration.

The third morning he was dragging the sprinkler around to the front to water the brown patches of grass when Mr. Alvarado came back. The old man shuffled slowly up the sidewalk, like a paper cutout inching forward frame by frame, and turned in at the gate without even looking up at the house. Steven paused, holding the hose. "How did it go?"

Mr. Alvarado ceased his forward progress and considered the question

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remotely. "The hole—I got it closed. It was much bigger than usual. Hard to bring the edges together."

"Cynthia was putting some bread in the oven."

"Ah." An imaginary whiff of baking bread stirred the old man's impassive features. He slid one foot forward, then the other, and resumed his motion in the direction of the house. At the front steps he paused with one hand on the railing, gathering his strength.

"Here, let me help you," Steven offered.

"No. Gracias. If I cannot do this myself, it is finished. We are all finished." After deliberating for another moment he hoisted a foot onto the first step.

"Cynthia said what you're doing is important."

"Yes. I close the holes in the world."

"Closing holes—how do you do it?"

The old man's eyes went soft as he looked into inner distances. "It is like wires. Like lightning. The world unravels, and I must knit it up. I seize the strands in my hands, so—" He clutched both hands into fists, suddenly and with surprising strength. "—and weave them back together." His torso weaved from side to side like a snake. "Sometimes they whip this way and that, very fast. I have to grab them and hold them. It is very tiring."

They had reached the porch. "This power," Steven prodded. "It just came to you, right?"

"No. Many years ago, I had a teacher. My teacher found me by the lightning he saw in my hands. I had not yet learned to see it. He taught me. When I was his apprentice there were two others like him in Mexico alone, and others around the world. And it seems to me that the holes were smaller then, but perhaps that is only my memory." He paused in the hallway to hang his hat on the rack. "Now the others are gone. Soon there will be nobody left to patch the holes."

"Couldn't you teach somebody else?"

"Always, as I travel, I search for one who has the—" He spread his fingers, palms facing one another from opposite sides of his chest as though he were holding a large cat's cradle. "—the lightning in his fingers. But there is nobody."

"Does it have to be somebody like that? Couldn't you teach somebody else?"

"No. Impossible."

"Mr. Alvarado, I don't know what you're saying, exactly, about lightning in your fingers, but I've got a kind of power, and maybe it's a little like yours. Maybe we could team up. You could teach me about this lightning stuff, and maybe I could learn it. I might surprise you. But even if it took me a while to learn, I'd be glad to go along with you when

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you go somewhere, and make sure nobody gives you any trouble, or anything."

"I am sorry. I must go to my room now, and lie down."

"But Mr. Alvarado," Steven said, "you don't understand. I want to help. I've never done anything in my life but cause trouble, and I want to make a fresh start. I want to do something good for once. If you'll just let me . . ."

Cynthia appeared in the door to the kitchen, wearing an apron and holding a big bowl under her breast like a baby. "Steven," she said, waving a long wooden spoon at him, "don't annoy Mr. Alvarado."

He glared at her, and put his head down. "I'm sorry, Mr. Alvarado. I only wanted to help."

But the thought ate at him. The old guy needed somebody, that was for sure. Cynthia wouldn't let him near Laurel, and now this. What was he supposed to do around here, with Cynthia giving the orders? Just go for groceries whenever she snapped her fingers, and slave away in the yard, and talk to Mrs. Simpston, who never made any sense, or to the radio, which made sense but had nothing to say. He stomped back out the front door and scowled at the sprinkler, which hadn't been turned on yet, and instead of turning it on went back inside and upstairs to his room.

He had been lying there only seconds when the concert started. At first the low rumble pulsed soothingly like a passing train, but suddenly he was assailed by the screech of metal parts grinding against one another, a prolonged shriek with an uncomfortably human voice. He sat up and grimaced at the wall beyond which was Debby Weibel's room and shouted, "Shut up!"

Far from abating, the noise erupted. After an avalanche of thumps and crashes his own voice was thrown back at him distorted and echoing shut-up-shut-up-shut-up. Simultaneously the wall began to waver and shimmer in a moist organic rhythm that made him nauseous. He staggered out into the hall. Here a waterfall of pink globules was oozing sinuously down, accompanied by a dizzying antiphonal cacophony of invisible mourning doves. He leaned against the wall outside the girl's room to gather his strength. *Stop that.* The waterfall evaporated and the doves fell silent.

He listened at the top of the stairs, expecting to hear Cynthia coming to point an accusing finger, but the stairwell remained empty. I wasn't supposed to do that, he told himself. Well, what if I did? A man's entitled to a little peace and quiet, isn't he? Am I gonna let that bitch control *me?* Why should I let her run my life?

He went up the attic steps two at a time and pounded on the door. "Laurel! Laurel, open the door!"

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There was no response. He knocked again, more gently. "Laurel, it's me. I just want to see you for a minute. That won't hurt anything, will it?"

"Go away," said the muffled voice.

"Laurel—"

"I'm not Laurel. Can't you understand that?"

"But you could be," he said in his most seductive tone. "Remember how good it was? It could be that good again. Better. Wouldn't you like that?"

Below him the noise surged up again. This time it was a grinding of huge gears that rolled and swelled until the walls were rattling. Holding his ears, Steven staggered down the narrow steps, intending to make the girl eat her fingers, when suddenly Cynthia was below him, eyes flashing, wiping flour on her apron. "What's going on here?" she demanded. "What are you doing?"

"Nothing. I was going to ask her to stop, that's all."

"What were you doing in the attic?" Cynthia yelled over the din.

"Nothing! I wasn't up in the attic. Can't you get her to stop that?"

"What were you doing in the attic?"

"I can't stand this any longer." He strode to the girl's door and rattled the knob, which was locked, then stood back and kicked. The latch splintered. Debby Weibel was standing in the middle of the room, head back, eyes closed, swaying, hugging herself with thin bare arms.

Stop that. She faltered. *Stop that noise.* She crumpled in a heap and lay on the floor, twitching. Silence descended.

Behind him when he turned Cynthia stood, arms folded, eyes leveled at him. "You go," she said. "Right now. Leave this house."

Go back to the kitchen. Bake your bread.

She turned and marched down the stairs. Oh, yes. Exulting, he mounted again to the attic. "Laurel, honey. Come on, open up. Don't you know I've missed you?"

Silence.

"Lau-rel."

Silence.

"I can make you open the door. I'd rather not do that, sugar. I'd rather you do it because you want to. Don't you want to?"

"No! Go away!"

He worked his jaw stiffly. *Open the door.*

The door opened. She was more disheveled than before, and some of the gauntness had returned, a hunted look. He stepped in and closed the door. "Hey, baby. Aren't you glad to see me? Not going to give me a kiss?" He tilted her chin with a forefinger.

"I hate you. You're a monster."

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"Oooh, strong language. Well, if I'm a monster, what do you think that makes you?"

"I don't know what I am," Toby/Laurel said, troubled.

"Tell me you don't like being with me. Go on."

"I *do* like being with you, Steven. I can't help liking it. That's the trouble. Don't you see? Your strength and my weakness fit together perfectly. That's why you've got to stop. It feeds on itself. I get more and more dependent, and you get more and more cruel."

Shut up.

Laurel/Toby stared at him in mute appeal with the terrified eyes of a fawn caught in a bear trap. He stroked the hair away from the cheeks and held the head immobile, bringing the mouth very slowly closer and closer to his own. Laurel's lips were trembling, and wet. "Now, see," he said. "This isn't so bad, is it? You might even start to like it. Mmm?"

IX

"We've got to do something," Cynthia Lutz said to the radio.

"Agreed. What do you have in mind?"

"I was hoping maybe you'd have a suggestion. For once." She was leafing nervously through the recipe book. The problem was, she had been ordered to bake bread. And she was running out of ingredients. The flour and eggs and yeast were lined up in neat loaves to the right of the oven, waiting for their turn, with a misshapen oblong of Bisquick with onion and dill bringing up the rear. Somewhere in here, she remembered vaguely, there was something about corn starch, sunflower seeds, and zucchini. . . .

"You've already tried asking him to leave," the radio said.

"Right."

"Why not ask him to stay. Flatter him."

"Make him king of the mountain." She considered the idea.

"Only until you have a chance to dispose of him," the radio added.

"And what if I don't want to be disposed of?" Steven asked, leaning in at the kitchen door with an expansive grin. "You know, that's quite a little piece of action you've got up there. I might be starting to like it here." He took in a noseful of air. "Mmm, smells good. Did we get any strawberry jam, or are you gonna have to go get some?" He fished in the refrigerator. "He-e-ere we go." Setting the jar on the table, he grabbed an uncut loaf from the already-baked-and-still-warm row on the other counter and pawed through the drawer under the drainboard looking for a big sharp knife. Brandishing it with a slightly ironic flourish, he said, "An implement of destruction." He threw himself into a chair and stabbed

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the loaf of bread. When he had carved loose a thick slice, he dug jam from the jar with the blade and smeared it on the bread. Staring into her eyes wickedly, he took a big bite and chewed.

Inside she was squirming with fear, but she met his eyes. "Steven," she said slowly, "we've got to talk." He munched bread. "Steven, honey—"

"Don't you honey me. You only want me to back off so you can take charge of this place again. You're scared of me."

"That's right, Steven. We're scared of you. Steven—"

"You want to run everything. You want to tell me what to do. Don't you? Isn't that what you want? You want to tell me to go to my room. You try to tell me I'm *nasty* because I take over a lousy grocery clerk in a lousy supermarket. I'm nasty, huh? I'm not fit to associate with nice people like you. That's what you're thinking, isn't it? Well, I'll show you nasty. *I'll* show you nasty." He looked at the jellied butcher knife in his hand. "Here. Catch."

He tossed it to her, and she caught it deftly, by the hilt.

"That's good. Now. Dance."

The knife rotated inward toward her belly, and her shoulder and arm vibrated with the double effort of bringing the point closer and pushing it away. She bit her lip, and tasted iron blood. Very slowly she backed away from her own hand, and the hand followed, bringing the gleaming blade in to press an indentation into the apron. She heard a spastic moan and realized dimly that it was coming from her own throat.

"Let her alone!" cried the radio. "Let her alone! Stop it, do you hear? Stop it!"

Turning, he picked up the radio in both hands and hurled it across the kitchen, where it crashed into the wall. But in the moment when he was distracted, Cynthia flung the knife away and plunged toward the door.

He dashed after her. She lurched across the hall and out the front door and across the porch and hit the first step crooked and twisted her ankle and went down hard, banging an elbow and a hip and her head. She grabbed her head and pressed against the agony, until it started to subside.

He leaned over the railing and grinned down at her. *Die, bitch, die. Don't breathe. Forget how to breathe.*

She goggled up at him. Gradually her face turned rosy. Her torso heaved.

Oh, yes. It was hot wine in his veins. Oh, yes. But suddenly, he saw how it would be. This was what he loved, not Laurel. In another moment the image of Laurel would be burned forever out of his brain, and this purpling monstrosity would take its place. He would go back to the attic, and the attic-dweller would have the same staring hideous face, the tongue dripping bloody foam, the eyes popping, and wherever he went

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in the world the creature that had this face would pursue him and call endearments to him and reach out bony hands to clasp him to its cold, cold bosom.

He let go. He let go of her throat and ribs and diaphragm and turned and stumbled back into the house. Behind him came the rasp of air into tortured lungs. From the kitchen he grabbed an unsliced loaf of bread and tucked it in his shirt as he scampered upstairs for the duffel bag. Got to get out of here, got to get out of here. He looked around the bare room. He had left nothing. Back down the stairs, he staggered into the blazing afternoon. Cynthia was lying on the lawn, up on one elbow, gagging. He took the steps three at a time and sprinted past the dry birdbath and leaped the short fence. She saw legs flash past, but she was busy sucking in air to ease the burning. When her brain swam into focus so she could look, he was already out of sight. Away down the crooked sidewalk diminished the thud of running boots.

X

The next day they held a funeral for the radio. Cynthia had to call about twenty places to find the right tubes, but when they plugged them in the radio only hummed and got Fresno through a lot of static, no matter how much they begged and pleaded with it. So Cynthia dug a hole in the back yard and they buried it. She couldn't think of anything to say at the funeral of a radio, which made her so damn mad she cried. Mrs. Simpston had picked a bouquet of wild mushrooms, for no reason that anybody could fathom, to put on the grave. Mr. Alvarado clutched his hat before him in both hands, and Frank Reeves put in a wavering appearance. Little Debby Weibel held Mrs. Simpston's other hand and snuffled. And from the attic window a face looked out.

When Cynthia had tamped down the dirt and put the shovel back in the garage, she went back into the kitchen and looked in all the cabinets to figure out how much food they had left. They were going to eat a lot of bread for the next few days, that was for sure. She made a list, and planned some meals. It came to about two weeks, depending on how many meals Frank Reeves did or didn't show up for. After that, they would be back where they started.

She looked over at the empty spot on the table where there wasn't any radio. "Got any hot ideas?" she asked. The empty spot didn't say anything. After a while she said softly, "Thanks for saving my life."

The empty spot didn't say anything to that either. ●

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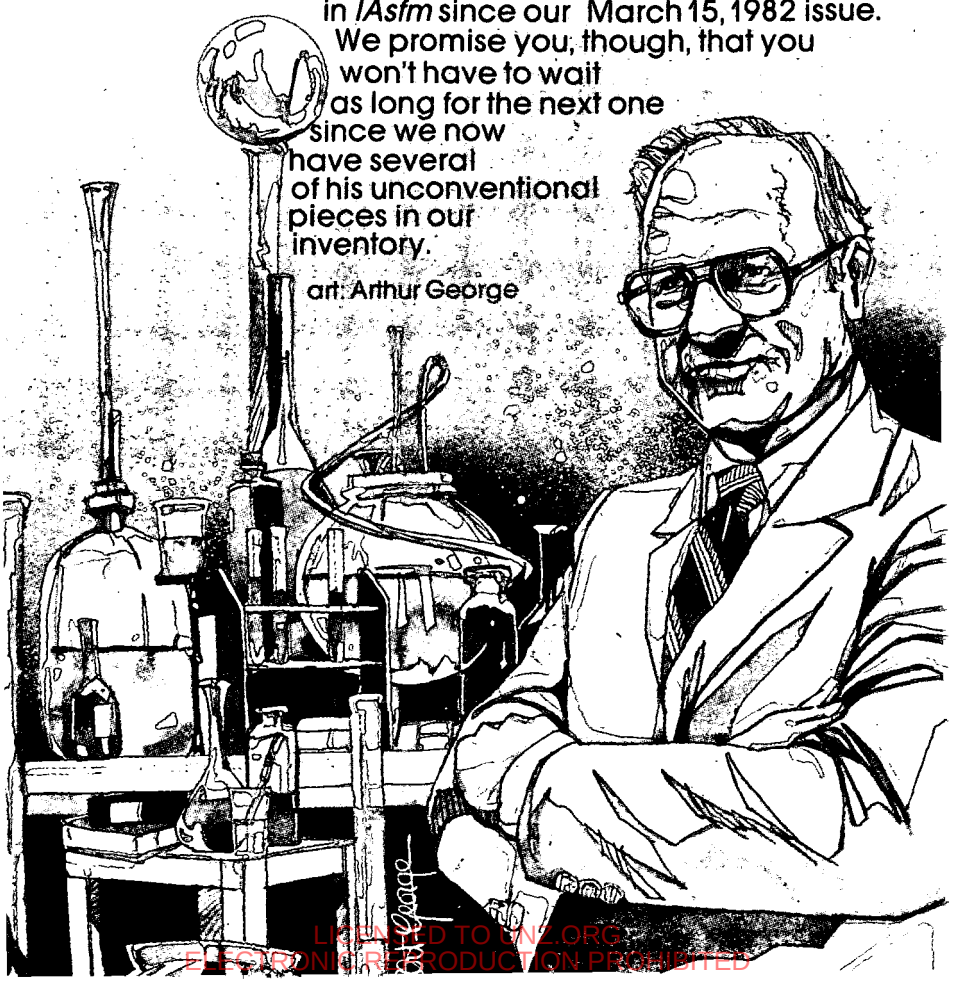
BODY MAN

by Avram Davidson

This short story marks Mr. Davidson's first appearance in *IAsfm* since our March 15, 1982 issue. We promise you, though, that you won't have to wait as long for the next one since we now have several of his unconventional pieces in our inventory.

art: Arthur George



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The customer pushed his lower lip into his upper lip, shook his head.

"What," said Birnbaum.

" 'No warts,' I told you, Birnbaum."

" 'No warts,' of course you told me 'no warts.' Who says 'warts'?"

"So why are there warts?"

"What warts, where warts?"

The customer averted his head, pointed. Said: "Look."

Birnbaum looked. He looked the look of one who saw no warts and merely wondered greatly. Then a look of disbelief, then a look of astonishment, then a look of outrage. "I'll kill 'im, I'll kill 'im, that dumb kid assistant! 'No warts,' I told 'im. 'Customer doesn't *care* the present body has warts, customer doesn't want warts on the new body,' I tell 'im; talk to the dumb kid assistant, talk to the wall. Warts." He shook his head from side to side with little stiff jerks. A moment later he said, hopefully, "A, a dermatologist, one—two—three, *zzzzzzzz*?"

"I wanted a dermatologist, Birnbaum, I'd go to a dermatologist. Eight million, eight hundred thousand—"

"*You*'re right, *you*'re right. *O*kay. *O*kay." He flipped through his order book, smeared back the pages, mumbled. " 'Consolidated Factors, two Account Execs,' 'Regular Republican and Democratic District Club, one Politician (attention: Smile), Church of the Former and the Latter Rains, one Spirit-filled Evangelist, customer will supply own Spirit, eighteen and a half percent discount plus regular ten percent clerical discount . . .' " His mumbling stopped, he gave a quick look up, said, "Two weeks."

"Two, *weeks?*"

"All right. All right. Next Thursday. Ready by five o'clock, quicker than that it couldn't be done, figure it out, 800,000 a day overhead, one customer gets two discounts, one isn't enough, you could live but they won't let you, you think I lick honey in this rotten business, go train a good body man like he was your own son you live in fear and trembling eventually he'll go open his own place with your own customers some of them loyalty doesn't mean a thing, present company exempted, and if you should dast mention to an assistant untactfully a reprimand: right away: the Union."

"Birnbaum."

"Thank God the Summer is a long way off, comes July, August, the pippick people, 'specialists,' you hear? 'specialists,' they start walking out off of even the little bit of a day's work you ever get from them, 'Not only are the pippicks melting but we are also melting too in this terrible weather where you could pass out in any minute,' the specialists—"

"Biographies I don't want, Birnbaum. Warts I don't want, Birnbaum. Next Friday at what time is none of your business Birnbaum I have a very important appointment, God forbid I should have warts, Birnbaum.

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You hear." The air was tepid and smelled of elastiform.

"You wouldn't, you wouldn't. Thursday at six o'clock."

"Five."

Birnbaum gave a despairing look around the cluttered workshop, slumped into a weary sigh. "So let be five, I'll go with*out* lunch, who has the heart to eat? Five. Not before."

The young assistant had his own problems, but, "Listen, Bobby," said Birnbaum, "I regard you as my own son almost, what, the nose mixture I didn't confide in you, the formula that Kaplan and Kelley I let them eat their hearts out I didn't give, so when it says on the *blue* slip 'No warts,' so why do you put warts?"

Bobby looked up slowly from his sandwich, mayo drip on his lower lip. "You know what she says to me, Morris? 'All you want is my body, Bobby, maybe you been in that business long enough and maybe we been together too long,' how do you like *that*, how do you *like* that?"

Birnbaum, whose wife had long since ceased to make similar accusations, was, despite business pressures, interested. "*Who* said? Sheila?"

"Who else but Sheila, you think I'm some kind of a philander, I have the soul of a great artist, Morris, I'm no philander; what does she mean, '*all* I want,' as though it was a mere nothing of no consequence: *Maron!* You seen the body on her, Morris?"

"I didn't seen."

"Oh my *God* what a body. '*All*,' " he said, bitterly, biting into his sandwich with savage teeth.

Birnbaum breathed a breath or two, nodded. "Yes, but Bobby, I also was once young, similar stories I could tell you, passion I appreciate completely, at the end of the week when she or any other young lady she demands 'Take me here and take me there or I wouldn't even let you look at it,' and you're reaching into the pockets with both hands and the left foot: so how, so tell me, so explain to me, Bobby, how do you expect you're going to find anything in the pocket, Bobby, if we lose our paying customers because you paying no attention to the *blue* slip where it says, clearly and distinctly, Bobby, 'No warts'?"

Bobby took the last swallow of sandwich, followed it with a long tug at his soft-drink bottle, turned his large and glistening eyes upon his employer, put the bottle down on the spray-tray, asked, "Medium-brown hair slightly receding hairline, 'Reduce obesity by ten pounds' it also says on the *blue* slip?"

Birnbaum, encouraged, nodded and nodded. "The one, that's the one—"

Bobby burped; said, "Morris, to you I may be just a young kid whose erotic impulses, like, overshadow his importance of economic considerations, but let me tell you, Morris, I love artistic integrity above all things, and believe me, Morris: I don't put warts where they don't belong;

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okay, okay, I see I still got ten minutes left on my lunch hour, but I'll bring it in on the dolly and I'll take a look at it; don't tell the Union."

The next week passed in the usual grind of occupation; Bobby came to work placidly, disconsolately, frenziedly, haggardly. At five on Thursday afternoon a customer perhaps twenty pounds overweight and with a slightly receding line of medium-brown hair came in with his eyebrows raised, followed Birnbaum's finger, examined the work, examined it carefully, gave several nods of more than merely grudging acceptance, verbally expressed his total satisfaction, and microzapped for the 8,800,000; Bobby came to work on Friday morning sullenly and contentedly; he and his employer toiled together without many words, Consolidated Factors' Account Execs (two) were picked up by a mere menial; the Representative of the Regular Republican and Democratic District Club praised the quality of the crafted smile, and, smiling, sold Birnbaum two tickets for a dance and ball, Birnbaum offered them to Bobby: Bobby, with a quick jerk of his head, declined.

He declined lunch, too, was offered and accepted his check plus a small bonus, and helped get the order finished and ready for the Church of the Former and the Latter Rains' Evangelist a bit ahead of time, thus avoiding an opportunity for the Church's representative to engage in prolonged witnessing; "*Two* discounts," said Birnbaum, shaking his head. "Some have the name, whereas others play the game."

At five Birnbaum began to put things together in order to put things away for the weekend, and to sweep and sort; when he looked up to say a parting word for Bobby, Bobby wasn't there. Shortly before six the front door crashed open and a *gor*geous young woman entered, screaming. "You bastard, you son of a bitch, my brothers will *kill* you, wait till I tell them," she shouted, some degree of hoarseness hinting that she had been screaming for some while; "Where *are* you, you bastard, you son of a bitch, they'll tear you apart, what you did to *me*," she cried, ignoring Birnbaum's presence, though Birnbaum did not ignore hers; "Where *is* he, where *is* he," demanded the splendid creature.

She beat upon the doors of the finishing room; "Where is *who?*" queried Birnbaum.

"That son of a bitch who *works* here, that rotten bastard, Bobby—"

She raised her foot to kick the door which Birnbaum at once flung open; "He's not *here*, go look, go look, then calm down; my God what did he *do*?"

All the while Birnbaum was inviting her to look, she was looking: no dice; when he asked the question she swung her unflawed face and gorgeous body around and, looking at him, she screamed her answer: *"Warts! Warts! Warts! Warts!"* ●

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THE PRISONER OF CHILLON

by James Patrick Kelly

art: J K Potter

James Patrick Kelly's last story in *IAsfm*, the highly acclaimed "Solstice" (June 1985), was set in the same high-tech and hard-edged universe as "The Prisoner of Chillon." Like his earlier tale, "Prisoner" takes off at a run and the pace never lets up until the story ends. Mr. Kelly is currently at work on his third novel, *Look into the Sun*.

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We initiated deorbital burn over the Marshall Islands and dropped back into the ionosphere, locked by the wing's navigator into one of the Eurospace reentry corridors. As we coasted across Central America we were an easy target for the attack satellites. The plan was to fool the tracking nets into thinking we were a corporate shuttle. Django had somehow acquired the recognition codes; his computer, kludged to the navigator, made the wing think it was the property of Erno Raumfahrt-technik GMBH, the West German aerospace conglomerate.

It was all a matter of timing, really. It would not be too much longer before the people on IBM's Orbital 7 untangled the spaghetti Django had made of their memory systems and realized that he had downloaded WISEGUY and stolen a cargo wing. Then they would have to decide whether to zap us immediately or have the mindkillers waiting when we landed. Django's plan was to lose the wing before they could decide. Our problem was that very little of the plan had worked so far.

He had gotten us on and off the orbital research station all right, and had managed to pry WISEGUY from the jaws of the corporate beast. For that alone his reputation would live forever among operators, even if he was not around to enjoy the fame. But he had lost his partner—Yellowbaby, the pilot—and he still did not know exactly what it was he had stolen. He seemed pretty calm for a punk who had just plugged the world's biggest corporation. He slouched in the commander's seat across from me watching the readouts on the autopilot console. He was whistling and tapping a finger against his headset as if he were listening to one of his old jazz disks. He was a dark, ugly man with an Adam's apple that looked like a nose and a nose that looked like an elbow. He had either been juved or he was in his mid-thirties. I trusted him not at all and liked him less.

Me, I felt as though I had swallowed a hardboiled egg. I was just along for the story, the *juice*. According to the courts, all I was allowed to do was aim my microcam glasses at Django and ask questions. If I helped him in any way, I would become an accessory and lose press immunity. But press immunity wouldn't do me much good if someone decided to zap the wing. The First Amendment was a great shield and all but it didn't protect against re-entry friction. I wanted to return to earth with a ship around me; sensors showed the outer skin was currently 1400 degrees Celsius.

"Much longer?" A dumb question since I already knew the answer. But better than listening to the atmosphere scream as the wing bucked through turbulence. I could feel myself losing it; I wanted to scream back.

"Twenty minutes. However it plays." Django lifted his headset. "Either you'll be a legend or air pollution." He stretched his arms over his head and arched his back away from the seat. I could smell his sweat. "Hey,

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lighten up, Eyes. You're a big girl now. Shouldn't you be taking notes or something?"

"The camera sees all." I tapped the left temple of the microcam and then forced a grin that hurt my face. "Besides, it's not bloody likely I'll forget this ride." I wasn't about to let Django play with me. He was too hypered on fast-forwards to be scared. My father had been the same way; he ate them like popcorn when he was working. And called me his big girl.

It had been poor Yellowbaby who had introduced me to Django. I had covered the Babe when he pulled the Peniplex job. He was a real all-nighter—handsome as plastic can make a man, and an artiste in bed. Handsome, past tense. The last time I had seen him he was floating near the ceiling of a decompressed cargo bay, an eighty kilo hunk of flash-frozen boytoy. I missed him already.

"I copy, Basel Control." Yellowbaby's calm voice crackled across the forward flight deck. "We're doing Mach 9.9 at 57,000 meters. Looking good for touch at 14:22."

We had come out of reentry blackout. The approach program that Yellowbaby had written, complete with voice interaction module, was in contact now with Basel/Mulhouse, our purported destination. As long as everything went according to plan, the program would get us where we wanted to go. If anything went wrong . . . well, the Babe was supposed to improvise if anything went wrong.

"Let's blow out of here." Django heaved himself out of the seat and swung down the ladder to the equipment bay. I followed. We pulled EV suits from the lockers and struggled into them. I could feel the deck tilting as the wing began a series of long lazy "S" curves to slow our descent.

Django unfastened his suit's weighty backpack and quickly shucked the rest of the excess baggage: comm and life support systems, various umbilicals. He was whistling again.

"Would you shut the hell up?" I tossed the still camera from my suit onto the pile.

"You don't like Fats Waller?" There was a chemical edge to his giggle. " 'I've Got a Feeling I'm Falling,' great tune." And then he began to sing; his voice sounded like gears being stripped.

Yellowbaby's program was reassuring Basel even as we banked gracefully toward the Jura Mountains. "No problem, Basel Control," the dead man's voice drawled. "Malf on the main guidance computer. I've got backup. My L over D is nominal. You just keep the tourists off the runway and I'll see you in ten minutes."

I shut down the microcam—no sense wasting batteries and disk space shooting the inside of an EV suit—and picked up the pressure helmet.

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"Think I'm falling for you, Eyes." Django blew me a kiss. "Don't forget to duck." He made a quacking sound and flapped his arms like wings. I put the helmet on and closed the seals. It was a relief not to have to listen to him rave; we had disabled the comm units to keep the mind-killers from tracking us. He handed me one of the slim airfoil packs we had smuggled onto and off of Orbital 7. I stuck my arms through the harness and fastened the front straps. I could still hear Yellowbaby's muffled voice talking to the Swiss controllers. "Negative, Basel control, I don't need escort. Initiating terminal guidance procedures."

At that moment I felt the nose dip sharply. The wing was diving straight for the summit of Mont Tendre, elevation 1679 meters. I crouched behind Django in the airlock, tucked my head to my chest, and tongued the armor toggle in the helmet. The thermofiber EV suit stiffened and suddenly I was a shock-resistant statue, unable to move. I began to count backwards from one thousand; it was better than listening to my heart jackhammer. Nine hundred and ninety-nine, nine hundred and ninety-eight, nine hundred and . . .

I remembered the way Yellowbaby had smiled as he unbuttoned my shirt, that night before we had shuttled up to 7. He was sitting on a bunk in his underwear. I had still not decided to cover the raid; he was still trying to convince me. But words weren't his strong point. When I turned my back to him, he slipped the shirt from my shoulders, slid it down my arms. I stood there for a moment, facing away from the bunk. Then he grabbed me by the waist and pulled me onto his lap. I could feel the curly hair on his chest brushing against my spine. Sitting there half-naked, my face glowing hot as any heat shield, I knew I was in deep trouble. He had nibbled at my ear and then conned me with that slow Texas drawl. "Hell, baby, only reason ain't no one never tried to jump out of a shuttle is that no one who really needed to jump ever had a chute." I had always been a fool for men who told me not to worry.

Although we were huddled in the airlock, my head was down so I did not see the hatch blow. But even with the suit in armor mode, I felt like the clapper inside a cathedral bell. The wing shuddered and, with an explosive last breath, spat us into the dazzling Alpine afternoon.

The truth is that I don't remember much about the jump after that. I know I unfroze the suit so I could guide the airfoil, which had opened automatically. I was too intent on keeping Django in sight and on getting down as fast as I could without impaling myself on a tree or smashing into a cliff. So I missed being the only live and in-person witness to one of the more spectacular crashes of the twenty-first century.

We were trying to drop into the Col du Marchairuz, a pass about seven kilometers away from Mont Tendre, before the search hovers came swarming. I saw Django disappear into a stand of dead sycamores and

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thought he had probably killed himself. I had no time to worry because the ground was rushing up at me like a nightmare. I spotted the road and steered for it but got caught in a gust which swept me across about five meters above the pavement. I touched on the opposite side; the airfoil was pulling me toward a huge boulder. I toggled to armor mode just as I hit. Once again the bell rang, knocking the breath from me and announcing that I had arrived. If I hadn't been wearing a helmet I would have kissed that chunk of limestone.

I unfastened the quick-release hooks and the airfoil's canopy billowed, dragged along the ground, and wrapped itself around a tree. I slithered out of the EV suit and tried to get my bearings at the same time. The Col du Marchairuz was cool, not much above freezing, and very, very quiet. Although I was wearing standard-issue isothermals, the skin on my hands and neck pebbled and I shivered. The silence of the place was unnerving. I was losing it again, lagged out: too damn many environments in too short a time. An old story. I liked to live fast, race up that adrenalin peak where there was no time to think, just survive the now and to hell with the sordid past and the shabby future. But nothing lasts, nothing. I had dropped out of the sky like air pollution; the still landscape itself seemed to judge me. The mountains did not care about Django's stolen corporate secrets or the caper story I would produce to give some jaded telelink user a Wednesday night thrill. I had risked my life for some lousy juice and a chance at the main menu; the cliffs brooded over my reasons. So very quiet.

"Eyes!" Django dropped from a boulder onto the road and trotted across to me. "You all right?"

I nodded. I couldn't let him see how close to the edge I was. "You?" There was a long scratch on his face and his knuckles were bloody.

"Walking. Tangled with a tree. The chute got caught—had to leave it."

I nodded again. He stooped to pick up my discarded suit. "Let's lose this stuff and get going."

I stared at him, thought about breaking it off. I had enough to put together one hell of a story and I had had more than enough of Django.

"Don't freeze on me now, Eyes." He wadded the suit and jammed it into a crevice. "If the satellites caught our jump, these mountains are going to be crawling with mindkillers—not to mention the plugging Swiss Army." He hurled my helmet over the edge of the cliff and began to gather up the shrouds of my chute. "We're gone by then."

I switched on and got thirty seconds of him hiding my chute. I didn't have a whole lot of disk space left and I thought I ought to start conserving. He was right about one thing; it wasn't quite time. If the mindkillers caught me now they'd confiscate my disks and let the lawyers

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fight it out. I'd have nothing to peddle to Jerry Macmillan at Infoline but talking heads and text. And the Swiss had not yet made up their minds about spook journalism; I could even end up in prison. As soon as I starting moving again, I felt better. Which is to say I felt nothing at all.

The nearest town was St. George, about four kilometers down the crumbling mountain road. We started at a jog and ended at a drag, gasping in the thin air. On the way Django stopped by a mountain stream to wash the blood from his face. Then he surprised me—and probably himself as well—by throwing up. When he rejoined me he was shaking: crazy Django might actually be human after all. It would make great telelink. He made a half-serious feint at the microcam and I stopped shooting.

"You okay?"

He nodded and staggered past me down the road.

St. George was one of those little ghost towns that the Swiss were mothballing with their traditional tidiness, as if they expected that the forests and vineyards would someday rise from the dead and that the tourists would return to witness this miracle. Maybe they were right; unlike other Europeans, the Swiss had not yet given up on their acid-stressed alpine lands, not even in the unhappy canton of Vaud, which had also suffered radioactive fallout from the nuking of Geneva. We stopped at a clearing planted with the new Sandoz pseudo-firs that overlooked the rust-colored rooftops of St. George. It was impossible to tell how many people were left in the village. All we knew for sure was that the post office was still open.

Django was having a hard time catching his breath. "I have a proposition for you," he said.

"Come on, Django. Save it for the whores."

He shook his head. "It's all falling apart . . . I can't . . ." He took a deep breath and blew it out noisily. "I'll cut you in. A third: Yellowbaby's share."

According to U.S. case law, still somewhat sketchy on the subject of spook journalism, at this point I should have dropped him with a swift kick to the balls and started screaming for the local gendarmerie. But the microcam was off, there were no witnesses and I still didn't know what WISEGUY was or why Django wanted it. "The way I count, it's just us two," I said. "A third sounds a little low."

"It'll take you the rest of this century to spend what I'm offering."

"And if they catch me I'll spend the rest of the century on a punkfarm in Iowa." That was if the mindkillers didn't blow my fuses first. "Forget it, Django. We're just not in the same line. I watch—you're the player."

I'm not sure what I expected him to do next but it sure as hell wasn't

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to start crying. Maybe he was in shock, too. Or maybe he was finally slowing down after two solid days of popping fast-forwards.

"Don't you understand, I can't do it alone! You have to—you don't know what you're turning down."

I thought about pumping him for more information but he looked as if he were going critical. I didn't want to be caught in the explosion. "I don't get it, Django. You've done all the hard work. All you have to do is walk into that post office, get your message, and walk out."

"You don't understand." He clamped both hands to his head. "Don't understand, that was Babe's job."

"So?"

"So!" He was shaking. *"I don't speak French!"*

I put everything I had into not laughing. It would have been the main menu for sure if I had gotten that on disk. The criminal mind at work! This scrambled punk had raped the world's largest corporation and totaled a stolen reentry wing and now he was worried about sounding like a *touriste* in a Swiss *bureau de poste*. I was croggled.

"All right," I said, stalling, "all right, how about a compromise. For now. Umm. You're carrying heat?" He produced a Mitsubishi penlight. "Okay, here's what we'll do. I'll switch on and we'll do a little bit for the folks at home. You threaten me, say you're going to lase your name on my forehead unless I cooperate. That way I can pick up the message without becoming an accessory. I hope. If we clear this, we'll talk deal later, okay?" I didn't know if it would stand up in court, but it was all I could think of at the time. "And make it look good."

So I shot a few minutes of Django's threatening me and then we went down into St. George. I walked into the post office hesitantly, turned and got a good shot of Django smoldering in the entryway and then tucked the microcam glasses into my pocket. The clerk was a restless woman with a pinched face who looked as if she spent a lot of time wishing she were somewhere else. I assaulted her with my atrocious fourth form French.

"Bonjour, madame. Y a-t-il des lettres électroniques pour D. J. Hack."

"Hack?" The woman shifted on her stool and fixed me with a suspicious stare. "Comment cela s'écrit-il?"

"H-A-C-K."

She keyed the name into her terminal. "Oui, la voici. Tapez votre autorisation à la machine." She leaned forward and pointed through the window at the numeric keypad beside my right hand. For a moment I thought she was going to try to watch as I keyed in the recognition code that Django had given me. I heard him cough in the entryway behind me and she settled back on her stool. Lucky for her. The postal terminal

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whirred and ground for about ten seconds and then a sealed hardcopy clunked into the slot above the keypad.

"Vous êtes touristes americaines." She looked straight past me and waved to Django, who ducked out of the doorway. "Baseball Yankees, ha-ha." I was suddenly afraid he would come charging in with penlight blazing to make sure there were no witnesses. "Avez-vous besoin de une chambre pour la nuit? L'hôtel est fermé, mais . . ."

"Non, non. Nous sommes pressés. A quelle heure est le premier autobus pour Rolle?"

She sighed. "Rien ne va bien. Tout va mal." The busybody seemed to be speaking as much to herself as to me. I wanted to tell her how lucky she was that Django had decided not to needle her where she stood. "Quinze heures vingt-deux."

About twenty minutes—we were still on schedule. I thanked her and went out to throw some cold water on Django. I was surprised to find him laughing. I didn't much like all these surprises. Django was so scrambled that I knew one of these times the surprise was bound to be unpleasant. "I could've done that," he said.

"You didn't." I handed him the hardcopy and we retreated to an alley with a view of the square.

It is the consensus of the world's above and below ground economies that the Swiss electronic mail system is still the most secure in the world. It has to be: all the Swiss banks, from the big five to the smallest locals, use the system for the bulk of their transactions. Once it had printed out Django's hardcopy, the PTT system erased all records of the message. Even so, the message was encrypted and Django had to enter it into his computer cuff to find out what it said.

"What is this?" He replayed it and I watched, fascinated, as the words scrolled along the cuff's tiny display:

"Lake Leman lies by Chillon's walls: / A thousand feet in depth below / Its massy waters meet and flow; / Thus much the fathom-line was sent / From Chillon's snow-white battlement . . ."

"It's called poetry, Django."

"I know what it's called! I want to know what the hell this has to do with my drop. Half the world wants to chop my plug off and this scut sends me poetry." His face had turned as dark as beaujolais nouveau and his voice was so loud they could probably hear him in France. "Where the hell am I supposed to go?"

"Would you shut up for a minute?" I touched his shoulder and he jumped. When he went for his penlight I thought I was cooked. But all he did was throw the hardcopy onto the cobblestones and torch it.

"Feel better?"

"Stick it."

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"Lake Leman," I said carefully, "is what the French call Lake Geneva. And Chillon is a castle. In Montreux. I'm pretty sure this is from a poem called 'The Prisoner of Chillon' by Byron."

He thought it over for a moment, chewing his lower lip. "Montreux." He nodded; he looked almost human again. "Uh—okay, Montreux. But why does he have to get cute when my plug's in a claw? Poetry—what does he think we are, anyway? I don't know a thing about poetry. And all Yellowbaby ever read was manuals. Who was supposed to get this anyway?"

I stirred the ashes of the hardcopy with my toe. "I wonder." A cold wind scattered them and I shivered.

Of course, I was wrong. Chillon is not in Montreux but in the outlying commune of Veytaux. It took us a little over six hours from the time we bailed out of the wing to the moment we reached the barricaded bridge which spanned Chillon's scummy moat. All our connections had come off like Swiss clockwork: postal bus to the little town of Rolle on the north shore of Lake Geneva, train to Lausanne, where we changed for a local to Montreux. No one challenged us and Django sagged into a kind of withdrawal trance, contemplating his reflection in the window with a marble egg stare. The station was deserted when we arrived. Montreux had once been Lake Geneva's most popular resort but the tourists had long since stopped coming, frightened off by rumors—no doubt true, despite official denials from Bern—that the lake was still dangerously hot from the Geneva bomb. We ended up hiking several kilometers through the dark little city, navigating by the light of the gibbous moon.

For that matter, Byron was wrong, too. Or at least out-of-date. Chillon's battlement was no longer snow-white. It was fire-blackened and slashed with laser scars; much of the north-eastern facade was rubble. There must have been a firefight during the riots after the bomb. The castle was built on a rock about twenty meters from the shore. It commanded a highway built on a narrow strip of land between the lake and a steep mountainside.

Django hesitated at the barrier blocking the wooden footbridge to the castle. "It stinks," he said.

"You're a rose?"

"I mean the setup. Poetry was bad enough. But this—" he pointed up at the crumbling towers of Chillon, brooding beside the moonlit water—"this is fairy dust. Who does this scut think he is? Count Dracula?"

"Maybe he is. Only way you're going to find out is to knock on the door and . . ."

A light on the far side of the bridge came on. Through the entrance to Chillon hopped a pair of oversized dice on pogo sticks.

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"Easy, Django," I said. He had the penlight ready. "Give it a chance."

Each pogo was a white plastic cube about half a meter on a side; the pips were sensors. The legs telescoped at a beat per second; the round rubber feet hit the wooden deck in unison. *Thwocka-thwocka-thwock.*

"Snake-eyes." There was a single sensor on each of the faces closest to us. Django gave a low ugly laugh as he swung a leg over the barrier and stepped onto the bridge.

They hopped up to him and bounced in place for several beats, as if sizing him up. "I am sorry," said the pogo nearest to us in a pleasant masculine voice, "but the castle is no longer open to the public."

"Get this, scut." Django ignored the pogo and instead shook his penlight at the gatehouse on the far side of the bridge. "I've been through too much to play games with your plugging remotes, understand? I want to see you—now—or I'm walking."

"I am not a remote." The lead pogo sounded indignant. "I am a self-contained unit capable of independent action."

"Stick that." Django jabbed at his cuff and it emitted a high-pitched squeal of code. "Now you know who I am. So what's it going to be?"

"This way, please," said the lead pogo, bouncing backward toward the gatehouse. "Please refrain from taking pictures without expressed permission."

I assumed that was meant for me and I didn't like it one bit. I clambered over the barricade and followed Django.

Just before we passed through Chillon's outer wall, the other pogo began to lecture. "As we enter, notice the tower to your left. The Strong Tower, which controls the entrance to the castle, was originally built in 1402 and was reconstructed following the earthquake of 1585." *Thwock-thwocka.*

I glanced at Django. In the gloom I could see his face twist in disbelief as the pogo continued its spiel.

". . . As we proceed now into the gatehouse ward, look back over your shoulder at the inside of the eastern wall. The sundial you see is a twentieth century restoration of an original that dated back to the Savoy period. The Latin, *'Sic Vita Fugit,'* on the dial translates roughly as 'Thus Life Flies By.' "

We had entered a small dark courtyard. I could hear water splashing and could barely make out the shadow of a fountain. The pogos lit the way to another, larger courtyard and then into one of the undamaged buildings. They bounded up a flight of stairs effortlessly; I had to hurry to keep up and was the last to enter the Great Banqueting Hall. The beauty and strangeness of what I saw stopped me at the threshold; instinctively I tried to switch on the microcam. I heard two warning beeps

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and then a whispery crunch. The status light went from green to red to blank.

"Expressed permission," said the man who sat waiting for us. "Come in anyway, come in. Just in time to see it again—been rerunning all afternoon." He laughed and nodded at the flatscreen propped against a bowl of raw vegetables on an enormous walnut table. "Oh, God! It is a fearful thing to see the human soul take wing."

Django picked it up suspiciously. I stood on tiptoes and peeked over his shoulder. The thirty-centimeter screen did not do the wing justice and the overhead satellite view robbed the crash of much of its visual drama. Still, the fireball that bloomed on Mont Tendre was dazzling; Django whooped at the sight. The fireball was replaced by a head talking in High German and then close-ups of the crash site. What was left of the wing wouldn't have filled a picnic basket.

"What's he saying?" Django thrust the flatscreen at our host.

"That there has not been a crash like this since '55. Which makes you famous, whoever you are." Our host shrugged. "He goes on to say that you're probably dead."

The banqueting hall was finished in wood and stone. Its ceiling was a single barrel vault, magnificently embellished. Its centerpiece was the table, some ten meters long and supported by a series of heavy Gothic trestles. Around this table was ranged a collection of wheelchairs. Two were antiques: a crude pine seat mounted on iron-rimmed wagon wheels and a hooded Bath chair. Others were failed experiments, like the ill-fated air-cushion chair from the turn of the century and a low-slung cousin of the new aerodynamic bicycles. There were powered and push models, an ultralightweight sports chair and a bulky mobile life-support system. They came in colors; there was even one that glowed.

"So the mindkillers think we're dead?" Django put the flatscreen back on the table.

"Possibly." Our host frowned. "Depends when the satellites began to track you and what they saw. Have to wait until the Turks kick the door in. Until then call it a clean escape and welcome to Chillon prison." He backed away from the table; the leather seat creaked slightly as his wheelchair rolled over the uneven floor toward Django. "François Bonivard." With some difficulty he raised his good hand in greeting.

"I'm Django." He grasped Bonivard's hand and pumped it once. "Now that we're pals, Frank, get rid of your goddamned remotes before I needle them."

Bonivard winced as Django released his hand. "Id, Ego, make the rounds," he said. The pogos bounced obediently from the banqueting hall.

François de Bonivard, sixteenth century Swiss patriot, was the hero

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of Byron's "The Prisoner of Chillon." Reluctantly, I stepped forward to meet my host.

"Oh yeah." Django settled gingerly into one of the wheelchairs at the table. "Maybe I forgot to mention Eyes. Say, what do you do for drugs around here anyway? I've eaten a fistful of forwards already today; I could use some Soar to flash the edges off."

"My name is Wynne Cage," I said. Bonivard seemed relieved when I did not offer to shake his hand. "I'm a freelance . . ."

"Introductions not necessary. Famous father and all." Bonivard nodded wearily. "I know your work."

It was hard to look at the man who called himself François Bonivard and I had been trying to avoid it until now. Both of his legs had been amputated at the hip joint and his torso was fitted into some kind of bionic collar. I saw readouts marked *renal function, blood profile, bladder* and *bowels*. The entire left side of Bonivard's torso seemed withered, as if some malign giant had pinched him between thumb and forefinger. The left arm dangled uselessly, the hand curled into a frozen claw. The face was relatively untouched, although pain had left its tracks, particularly around the eyes. And it was the clarity with which those wide brown eyes saw that was the most awful thing about the man. I could feel his gaze effortlessly penetrate the mask of politeness, pierce the false sympathy and find my horror. Looking into those eyes I thought that Bonivard must know how the very sight of his ruined body made me sick.

I had to say something to escape that awful gaze. "Are you related to *the* Bonivard?"

He smiled at me. "I am the current prisoner." And then turned away. "There was a pilot."

"Past tense." Django nibbled at a radish from the vegetable bowl. "How about my flash?"

"Business first." Bonivard rolled back to the table. "You have it then?"

Django reached into his pocket and produced a stack of memory chips held together with a wide blue rubber band. "Whatever WISEGUY is, he's one fat son-of-a-bitch. You realize these are ten *G*b chips." He set them on the table in front of him.

Bonivard rolled to his place at the head of the table and put two smart chips in front of him. "Passcards. Swiss Volksbank, Zurich. As they say, the payoff. All yours now." He slid them toward Django. "You made only one copy?"

And here was the juice. I could have strangled Bonivard for wrecking the microcam.

Django eyed the passcards but did not reach for them. "Not going to do me much good if the mindkillers get me."

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"No." Bonivard leaned back in his wheelchair. "But you're safe for now." He glanced up at the ceiling and laughed. "They won't look in a prison."

Django snapped the rubber band on his stack of chips. "Maybe you should tell me about WISEGUY. I put my plug on the cutting board to get it for you."

"An architecture." Bonivard shrugged. "For a new AI."

Django glanced over at me. The look on his face said it all. He was already convinced that Bonivard was scrambled; here was proof. "Come again?" he said slowly.

"Ar-ti-fi-cial in-tel-li-gence." Bonivard actually seemed to enjoy baiting Django. "With the right hardware and database, it can sing, dance, make friends and influence people."

He was pushing Django way too hard. "I thought true AI was a myth," I said, trying to break the tension. "Didn't they decide that intelligence is a bunch of ad hoc schemes glommed together any-which-way? Supposedly there's no way to engineer it—too big and messy."

"Have it your way," said Bonivard. "WISEGUY is really the way IBM keeps track of toilet paper. I'm in pulp. Want their account."

I knew my laugh sounded like braying but I didn't mind; I was trying to keep them from zapping each other. At the same time I was measuring the distance to the door. To my immense relief, Django chuckled too. And slipped the WISEGUY chips back into his pocket.

"I'm so burned-out," he said, "maybe we should wait." He stood up and stretched. "Even if we make an exchange tonight, we'd have a couple of hours of verifications to go through, no? We'll start fresh tomorrow." He picked up one of the passcards and turned it over several times between the long fingers of his left hand. Suddenly it was gone. He reached into the vegetable bowl with his right hand, pulled the passcard from between two carrots, and tossed it at Bonivard. It slid across the table and almost went over the edge. "Shouldn't leave valuable stuff like this lying around. Someone might steal it."

Django's mocking sleight-of-hand had an unexpected effect. Bonivard's claw started to tremble; I could tell he was upset at the delay. "It might be months, or years, or days—I kept no count, I took no note . . ." He muttered the words like some private incantation; when he opened his eyes, he seemed to have regained his composure. "I had no hope my eyes to raise, and clear them of their dreary mote." He looked at me. "Will you be requiring pharmaceuticals, too?"

"No, thanks. I like to stay clean when I'm working."

"Admirable," he said as the pogos bounced back into the hall. "I'm retiring for the evening. Id and Ego will show you to your rooms; you'll

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find what you need." He rolled through a door to the north without another word and Django and I were left staring at each other.

"What did I tell you?" said Django.

I couldn't think of anything to say. The hall echoed with the sound of the pogos bouncing.

"Voltage spikes in his CPU." Django tapped a finger against his temple.

I was awfully tired of Django. "I'm going to bed."

"Can I come?"

"Stick it." I had to get away from him, had to run. But it was too late; I could feel it behind the eyes, like the first throbs of a migraine headache. By the time I reached the hall leading to the stairs I knew the mania had faded and depression was closing in. Maybe it was because Bonivard had mentioned the famous father. A weak and selfish man who had created me in his image, brought me up in an emotional hot house, used me and called it love. Or maybe it was because now I had to let go of Yellowbaby, past tense. Who probably wasn't that much of a loss, just the most recent in a series of lovers with clever hands and a persuasively insincere line. Men I didn't have to take seriously. I came hard up against the one lesson I had learned from life: good old homo sap is nothing but a gob of complicated slime. I was slime doing a slimy job and trying to run fast enough that I wouldn't have to smell my own stink. Except that there was no place to go now. I was sorry now I hadn't hit that crazy scut Bonivard for some flash.

Thwocka-thwock. "This way, please." One of the pogos shot past me down the hallway.

I followed. "Which one are you?"

"He calls me Ego." It paused for a beat. "My real name is Datacorp R5000, serial number 290057202. Your room." It bounced through an open door. "This is the Bernese Chamber. Note the decorative patterns of interlacing ribbons, flowers, and birds which date . . ."

"Out," I said and shut the door behind it.

As soon as I sat on the musty bed, I realized I couldn't face spending the night alone. Thinking. I had to run somewhere—there was only one way. I decided that I'd had enough. I was going to wrap the story, finished or not. The thought cheered me immensely. I wouldn't have to care what happened to Django and Bonivard, wouldn't have to wonder about WISE-GUY. All I had to do was burst a message to Infoline. I was sure that my disks of the snatch and the crash of the wing would be story enough for Jerry Macmillan. He'd send the muscle to take me out and then maybe I'd spend a few months at Infoline's sanctuary in the Rockies watching clouds. Anyway, I'd be done with it. I emptied my diskpack, removed the false bottom, and began to rig the collapsible antenna. I locked onto the satellite and then wrote the message. "HOTEL BRISTOL

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VEYTAUX 6/18 0200GMT PIX IBM WING." I had seen the Bristol on the walk in. I loaded the message into the burster. There was a pause for compression and encryption and then it hit the Infoline satellite with an untraceable millisecond burst.

And then beeped at me. Incoming message. I froze. There was no way Infoline could respond that quickly, no way they were supposed to respond. It had to be prerecorded. Which meant trouble.

Jerry Macmillan's face filled the burster's four centimeter screen. He looked as scared as I felt. "Big problems, Wynne," he said. "Whatever your boys snatched is way too hot for us to handle. It's not just IBM—the feds are going crazy. They haven't connected you to us yet. It's possible they won't. But if they do, Legal says we've got to cooperate. National security. You're on your own."

I put my thumb over his face. I would have pushed it through the back of his skull if I could have.

"The best I can do for you is to delete your takeout message and the fix the satellite gets on your burster. It might mean my ass, but I owe you something. I know: this stinks on ice, kid. Good luck."

I took my thumb away from the screen. It was blank. I choked back a scream and hurled the burster against the stone wall of Chillon, shattering it.

Sleep? It would have been easier to slit my throat than to sleep that night. I thought about it—killing myself. I thought about everything at least once. All my calculations kept adding up to zero. I could turn myself in but that was about the same as suicide. Ditto for taking off on my own; without Infoline to back me up I'd be dead meat in a week. I could throw in with Django except that two seconds after I told him that I'd let a satellite get a fix on us he'd probably be barbecueing my pancreas with his penlight. And if I didn't tell him, I might cripple whatever chances we'd have of getting away. Maybe Bonivard would be more sympathetic—but then again, why should he be? Yeah, sleep. Perchance to dream. At least I was too busy to indulge in self-loathing.

By the time the sun began to peer through my window I felt as fuzzy as a peach and almost as smart. But I had a plan—one that would require equal parts luck and sheer gall. I was going to trust that plug-sucking Macmillan to keep his mouth shut and to delete all my records from Infoline's files. For the next few days I'd pretend I was still playing by the rules of spook journalism. I'd try to get a better fix on Bonivard. I hoped that when the time came for Django to leave I'd know what to do. Because all I was certain of that bleary morning was that I was hungry and in more trouble than I knew how to handle.

I staggered down the hall back toward the banqueting hall, hoping to

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find Bonivard or one of the pogos or at least that bowl of veggies. As I passed a closed door I heard a scratchy recording of saxophones honking. Jazz. Django. I didn't stop.

Bonivard was sitting alone at the great table. I tried to read him to see if his security equipment had picked up my burst to Infoline but the man's face was a mask. Someone had refilled the bowl in the middle of the table.

"Morning." I took a bite of raw carrot that was astonishingly good. A crisp sweetness, the clean spicy fragrance of loam. Maybe I'd been eating instant too long. "Hey, this isn't bad."

"My own." Bonivard nodded. "I grow everything."

"That so?" He didn't look strong enough to pull a carrot from the bowl, much less out of a garden. "Where?"

"In darkness found a dwelling place." His eyes glittered as I took a handful of cherry tomatoes. "You'd like to see?"

"Sure." Even though the tomatoes were even better than the carrot, I was no vegetarian. "You wouldn't have any sausage bushes, would you?" I laughed; he didn't. "I'd settle for an egg."

I saw him working the keypad on the arm of the wheelchair. I guess I thought he was calling the pogos. Or something. Whatever I expected, it was not the thing that answered his summons.

The spider walked on four singing, mechanical legs; it was a meter and a half tall. Its arms sang too as the servo motors which powered the joints changed pitch; it sounded something like an ant colony playing bagpipes. It clumped into the room with a herky-jerky gait although its bowl-shaped abdomen remained perfectly level. Each of its legs could move with five degrees of freedom; they ended in disk-shaped feet. One of its arms was obviously intended for heavy duty work since it ended in a large claw gripper; the other, smaller arm had a beautifully articulated four digit hand that was a masterpiece of microengineering. There was a ring of sensors around the bottom of its belly. It stopped in front of Bonivard's chair; he wheeled to face it. The strong arm extended toward him. The rear legs stretched out to balance. Bonivard gazed up at the spider with the calm joy of a man greeting his lover; I realized then that much of the pain I had detected in him had to do with the wheelchair. The claw fitted into notches in Bonivard's bionic collar and then, its servos screaming, the spider lifted him from the chair and fitted his mutilated torso into the bowl which was its body. There must have been a flatscreen just out of sight in the cockpit; I could see the play of its colors across his face. He fitted his good arm into an analog sleeve and digits flexed. He smiled down at me.

"Sometimes," he said, "people misunderstand."

I knew I was standing there like a slack-jawed moron but I was too

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croggled to even consider closing my mouth. The spider swung toward the stairs.

"The gardens," said Bonivard.

"What?"

"This way." The spider rose up to its full height in order to squeeze through the door. I gulped and followed. Watching the spider negotiate the steep stone steps, I couldn't help but imagine the spectacular segment I could have shot if Bonivard hadn't wasted my microcam. This was main menu stuff and I was the only spook within ten kilometers. As we emerged from the building and passed through the fountain courtyard, I caught up and walked alongside.

"I'm a reporter, you know. If I die of curiosity, it's your fault."

He laughed. "Custom-made, of course. It cost . . . but you don't need to know that. A lot. Wheelchairs are useless on steps but I keep them for visitors and going out. I'm enough of a monster as it is. The spider has to stay here anyway. Even if it could leave, imagine strolling through town wearing this thing. I'd be on the main menu of telelink within the hour and I can't allow that. You understand?" He glanced down at me and I nodded. I always nod when people tell me things I don't quite understand. Although I was pretty sure that there was a threat in there someplace.

"How do you control it?"

"Tell it where I want to go and it takes me. Rudimentary AI; about as intelligent as a brain-damaged ant. It knows every centimeter of Chillon and nothing else. Down these stairs."

We descended a flight of stone stairs into the bowels of Chillon and passed through a storeroom filled with pumps, disassembled hydroponic benches, and bags of water soluble nutrients. Beyond it, in a room as big as the Banqueting Hall, was Bonivard's garden.

"Once was the arsenal," he said. "Swords to ploughshares and all that. Beans instead of bullets."

Running down the middle of the room were four magnificent stone pillars which supported a series of intersecting roof vaults. Facing the lake to the west were four small windows set high on the wall. Spears of sunlight, tinted blue by reflections from the lake, fell on the growing benches beneath the windows. This feeble light was supplemented by fluorescents hung from the ceiling on adjustable chains.

"Crop rotation," said Bonivard, as I followed him between the benches. "Tomatoes, green beans, radishes, soy, adzuki, carrots, pak choi. Then squash, chard, peppers, peas, turnips, broccoli, favas, and mung for sprouts. Subirrigated sand system. Automatic. Here's an alpine strawberry." The spider's digits plucked a thumbnail-sized berry from a luxuriant bush. It was probably the sweetest fruit I had ever eaten, although

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a touch of acid kept it from cloying. "Always strawberries. Always. Have another."

As I parted the leaves to find one, I disturbed a fat white moth. It flew up at me, bounced off the side of my face, and flitted toward one of the open windows. With quickness that would have astonished a cobra, the spider's claw squealed and struck it in midair. The moth fluttered as the arm curled back toward Bonivard. He took it from the spider and popped it into his mouth. "Protein," he said. His crazed giggle was just too theatrical: part of some bizarre act, I thought. I hoped.

"Come see my flowers," he said.

Along the eastern, landward side of the arsenal, slabs of living rock protruded from the wall. Scattered among them was a collection of the sickest plants I'd ever seen. Not a single leaf was properly formed; they were variously twisted or yellowed or blotched. Bonivard showed me a jet-black daisy that smelled of rotting chicken. A mum with petals that ended with what looked like skeletal hands. A phalaenopsis orchid that he called "bleeding angels on a stick."

"An experiment," he said. "They get untreated water, straight from the lake. Some mutations are in the tenth generation. And you're the first to see."

I considered. "Why are you showing this to me?"

When the spider came to a dead stop the whine of the servos went from cacophony to a quietening harmony. For a few seconds Bonivard held it there. "Not interested?"

Although he glanced quickly away, it was not before I had seen the loneliness in his disappointed frown. There was something in me that could not help but respond to the man; a stirring that surprised and disgusted me. Still, I nodded. "Interested."

He brightened. "Then there's time for the dungeon before we go back."

We passed through the torture chamber and Bonivard pointed out burn marks at the base of the pillar which supported its ceiling. "Tied them here," he said. "Hot irons on bare heels. Look: scratch marks in the paint. Made by fingernails." He smiled at my look of horror. "Mindkillers of the Renaissance."

The dungeon was just beyond, a huge room, even larger than the arsenal. It was empty.

"There are seven pillars of Gothic mold," said Bonivard, "in Chillon's dungeons deep and old. There are seven columns, massy and gray, dim with a dull imprisoned ray, a sunbeam which hath lost its way."

"Byron's poem, right?" I was getting fed up with all this oblique posturing. "You want to tell me why you keep spouting it all the time? Because, to be honest, it's damned annoying."

He seemed hurt. "No," he said, "I don't think I want to tell you."

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Riding the spider did seem to change him. Or maybe it was merely my perspective that had changed. It was easy to pity someone in a wheelchair, someone who was physically lower than you. It was difficult to pity Bonivard when he was looking down at you from the spider. Even when he let his emotional vulnerability show, somehow he seemed the stronger for it.

There was a moment of strained silence. The spider took a few tentative steps into the dungeon, as if Bonivard was content to let it drift. Then he twisted in the cockpit. "It might have something to do with the fact that I'm crazy."

I laughed at him. "You're not crazy. God knows you probably had reason enough to go crazy once, but you're tough and you survived." I couldn't help myself. "No, Monsieur François de Bonivard, or whoever the hell you are, I'm betting you're a faker. It suits your purposes to play scrambled, so you live in a ruined castle and talk funny and eat bugs on the wing. But you're as sane as I am. Maybe saner."

I don't know which of us was the more surprised by my outburst. I guess Macmillan's message had made me reckless; if I was doomed, at least I didn't have to take any more crap. Bonivard backed the spider up and slowly lowered it to a crouch so that our faces were on a level.

"You know the definition of artificial intelligence?" he said.

I shook my head.

"The simulation of intelligent behavior so that it is indistinguishable from the real thing. Now tell me, if I can simulate madness so well that the world thinks I'm mad, so well that even I myself am no longer quite sure, who is to say that I'm not mad?"

"Me," I said. And then I leaned into the cockpit and kissed him.

I don't know why I did it; I was out on the edge. All the rules had changed and I hadn't had time to work out new ones. I thought to myself, what this man needs is to be kissed; he hasn't been kissed in a long time. And then I was doing it. Maybe I was only teasing him; I had never kissed anyone so repulsive in my life. It was a ridiculous, glancing blow that caught him on the side of the nose. If he had tried to follow it up I probably would have driven my fingers into his eyes and run like hell. But he didn't try to follow it up. He just stayed perfectly still, bent toward me like a seedling reaching for the light. Then he decided to smile and I smiled and it was over.

"I'm in trouble." I thought then was the time to confess. The old instincts said to trust him.

He was suddenly impassive. "We're all in trouble." I could not help but notice his shriveled arm twitch. He saw this; he saw everything about me. "I'm going to die. A year, maybe two."

I was dizzy. For a few seconds we had touched each other and then

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without warning a chasm yawned between us. There was something monstrous about the deadness of his expression, his face lit by the flickering of menus across the flatscreen in the spider's cockpit. I didn't believe him and said so.

"Reads eye movements," he nodded toward the screen. It was as if he had not heard me. "If I look at a movement macro and blink, the spider executes it. No hands." His laugh was bitter and the servos began to sing. The spider reared up to its normal meter-and-a-half walking height and stalked to the third pillar. On the third drum of the pillar was carved "Byron."

"Forgery," said Bonivard. "Although elsewhere is vandalism actually committed by Shelley, Dickens, Harriet Beecher Stowe. Byron didn't stay long enough to get the story right. Bonivard was an adventurer. Not a victim of religious persecution. Never shackled, merely confined. Fed well, allowed to write, read books."

"Like you."

Bonivard shrugged.

"It's been so long," I said. "I barely remember the poem. Do you have a copy? Or maybe you could give a recitation?"

"Don't toy with me." His voice was tight.

"I'm not." I really didn't know how things had gotten so bad, so quickly. "I'm sorry."

"Django is restless." The spider scuttled from the dungeon.

Nothing happened.

No assaults by corporate mercenaries, no frantic midnight escapes, no crashes, explosions, fistfights, deadlines. The sun rose and set; waves lapped at Chillon's walls as they had for centuries. At first it was torture adjusting to the rhythms of mundane life, the slow days and long nights. Then it got worse. Sleeping alone in the same damn bed and taking regular meals at the same damn table made my nerves stretch. I couldn't work. What I could do was eat, nap, worry, and wander the castle in a state of edgy boredom.

Sometimes I saw Django; other times Bonivard. But never the two at once. Perhaps they met while I was asleep; maybe they had stopped speaking. Django made it clear that their negotiations had snagged, but he did not seem upset. While I had no doubt that he would have killed either or both of us to get his payoff, I had the sense that the money itself was not important to him. He seemed to think of it in the way that an athlete thinks of the medal: a symbol of a great performance. My guess was that Django was psychologically unfit to be rich. If he lived to collect, he would merrily piss the money away until he needed to play again. Another performance.

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So it was that he seemed to take a perverse enjoyment in waiting Bonivard out. And why not? Bonivard provided him with all the flash he needed. Bonivard's telelink could access the musical library in Montreux, long a mecca for jazz. Django would sit in his room for hours, playing the stuff at launch pad volume. Sometimes the very walls of the castle seemed to ring like the plates of some giant vibraphone. Django had just about everything he wanted. Except sex.

"Beautiful dreamer, wake unto me." He had been drinking some poison or other all morning and by now his singing voice was as melodious as a fire alarm. "List while I woo thee with soft melody."

We were in the little room which the pogos called the treasury. It was long since bankrupt; empty except for debris fallen from the crumbling corbels and the chilling smell of damp stone. We were not alone; Bonivard's spider had been trailing us all morning. "Stick it, Django," I said.

He drained his glass. "Just a love song, Eyes. We all need love." He turned toward the spider. "Let's ask the cripple; he's probably tuned in. What about it, spiderman? Do I sing?"

The spider froze.

"Hey, François! You watching, pal?" He threw the plastic glass at the spider but it missed. Django was twisted, all right. There was a chemical gleam in his eyes that was bright enough to read by. "You like to watch? Cutters leave you a plug to play with while you watch?"

I turned away from him in disgust. "You ever touch me, Django, and I'll chew your balls off and spit them in your face."

He grinned. "Keep it up, Eyes. I like them tough."

The spider retrieved the glass and deposited it in its cockpit with some other of Django's leavings. I ducked through the doorway into Chillon's keep and began climbing the rickety stairs. I could hear Django and the spider following. Bonivard had warned Django that the spider would start to shadow him if he kept leaving things out and moving them around. Its vision algorithms had difficulty recognizing objects which were not where it expected them to be. In its memory map of Chillon there was a place for everything; anything unaccountably out of place tended to be invisible. When Django had begun a vicious little game of laying obstacle courses for the spider, it had responded by picking up after him like a doting grandmother with a neatness fetish.

According to Ego, who had first shown me how to get into the musty tower, the top of the keep rose twenty-seven meters from the courtyard. Viewed from this height Chillon looked like a great stone ship at anchor. To the west and north the blue expanse of Lake Geneva was mottled by occasional drifts of luminescent red-orange algae. To the south and east rose the Bernese Alps. The top of the keep was where I went to escape,

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although often as not I ended up watching the elevated highway which ran along the shore for signs of troop movements.

"Too much work," said Django, huffing from the climb, "for a lousy view." He wobbled over to join me at a north window. "Although it is private." He tried to get me to look at him. "What's it going to take, Eyes?" The spider arrived. I ignored Django.

I gazed down at the ruined prow of the stone ship. Years before an explosion had stripped away a chunk of the northeastern curtain wall and toppled one of the three thirteenth century defensive turrets, leaving only a blackened stump. Beside it were the roofless ruins of the chapel, which connected with Bonivard's private apartment. This was the only part of Chillon to which we were denied access. I had no idea whether he was hiding something in his rooms or whether secretiveness was part of the doomed Byronic pose he continued to strike. Maybe he just needed a place to be alone.

"He must have played in Montreux," said Django.

I glanced across the bay at the sad little city. "Who?"

"Django Reinhardt. The great gypsy jazzman. My man." Django sighed. "Sometimes when I listen to his stuff, it's like his guitar is talking to me."

"What's it say: buy IBM?"

He seemed not to hear me, as if he were in a dream. Or maybe he was suffering from oxygen depletion after the climb. "Oh, I don't know. It's the way he phrases away from the beat. He's saying: don't think, just do it. Improvise, you know. Better to screw up than be predictable."

"I'm impressed," I said. "I didn't know you were a philosopher, Django."

"Maybe there's a lot you don't know." He accidently pushed a loose stone from the window sill and seemed surprised that it fell to the courtyard below. "You get a flash pretending you're better than me but remember, you're the one following me around. If I'm the rat here that makes you a flea on my ass, baby. A parasite bitch." His face had gone pale and he caught at the wall to hold himself upright. "Maybe you deserve the cripple. Look at me! I'm alive—all you two do is watch me and wish."

And then I caught him as he passed out.

"The walls are everywhere," said Bonivard. "Limits." I found myself absently picking a pole bean from its vine before I realized that I didn't want it. "You're not smart enough, not rich enough. You get tired. You die." I offered it to him. "Some people like to pretend they've broken out. That they're running free." He bit into the bean. "But there's no escape. You have to find a way to live within the walls." He waved at the growing benches; I'm not sure whether it was his arm or the spider's that waved.

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"And then they don't matter." He took another bite of bean, and reconsidered. "At least, that's the theory."

"Maybe they don't matter to you. But these particular walls are starting to close in on me. I've got to get out, Bonivard. I can't wait anymore for you and Django to work the deal. This place is scrambling me. Can't you see it?"

"Maybe you only think you're crazy." He smiled. "I used to be like you. Rather, like him." Bonivard nodded at the roof. Django's direction. "They spotted me in their electronic garden, plucked me from it like I might pluck an offending beetle. Squashed and threw me away."

"But you didn't die."

"No." He shook his head. "Not yet."

"Who says you're going to die?"

"Me. More you don't need to know." I think he was sorry he had told me. "Leave any time. No one to stop you."

"You know I can't. I need help. If they catch me, you're next. They'll squash you dead this time."

"Half dead already." He glanced down at his withered left side. "Sometimes I wish they had finished the job. Do what's necessary. You know Voltaire's *Candide*? 'Il faut cultiver notre jardin.' It is necessary to cultivate our garden."

"Make sense, damn it!"

"Voltaire's garden was in Geneva. Down the street from ground zero."

Thwock-thwocka-thwock.

I'd been getting tension headaches for several days but this one was the worst. Every time Ego's rubber foot hit the floor of the banqueting hall, something hammered against the inside of my skull. I felt as if my brain was about to hatch. "Get away from me."

"I have been sent to demonstrate independent action," it said pleasantly. "I understand that you do not believe in artificial intelligence."

"I don't care. I'm sick."

"Have you considered retiring to your room?"

"I'm sick of my room! Sick of you! This pisspot castle."

Thwocka-thwocka. "Bonivard is dead."

"What!"

"François Bonivard died in 1570."

I felt a thrill of excitement that my headache instantly converted to pain. What I needed was to be stored in a cool dry place for about six weeks. Instead I was a good reporter and asked the next question, even though my voice seemed to squeak against my teeth like fingernails on a blackboard. "Then who is . . . the man . . . calls himself Bonivard?"

Thwock.

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I began again. "Who—"

"Carl Pfneudl."

I waited as long as I could. "Who the hell is Carl Pfneudl?"

"That is as much as I can say." The pogo was bouncing half a meter higher than usual.

"But . . ."

"A demonstration of independent action through violation of specific instructions."

I realized that I was blinking in time to its bouncing. But it didn't help.

"Had he known," continued the pogo, "he would have forbidden it and I would have had to devise another demonstration. It was a difficult problem. Do you know where Django is?"

"Yes. No. Look: don't tell Django, understand? I command you not to tell Django. Or speak to Bonivard of this conversation. Do you acknowledge my command?"

"I acknowledge," replied Ego. "However, contingencies may arise beyond . . ."

At that point I snapped. I flew out of my chair and put my shoulder into Ego's three spot. The pogo hit the floor of the banqueting hall hard. Its leg pistoning uselessly, it spun on its side. Then it began to shriek. I dropped to my knees, certain that the sound was liquefying my cochlear nucleus. I clapped hands to my ears to keep my brains from oozing out.

Id, summoned by Ego's distress call, was the first to arrive. As soon as it entered the room, Ego fell silent and ceased to struggle. Id crossed the room to Ego just as Django entered. Bonivard in the spider was right behind. Id bounced in place beside its fallen twin, awaiting instructions.

"Why two pogos?" Bonivard guided the spider around Django and offered an arm—his own—to help me up. It was the first time I'd ever held his hand. "Redundancy."

Id bounced very high and landed on Ego's rubber foot. Ego flipped into the air like a juggling pin, gyrostabilizers wailing, and landed—upright—with a satisfying *thwock*.

"You woke me up for this?" Django stalked off in disgust.

Bonivard had not yet let go of me. "How did it happen?"

"A miscalculation," said the pogo.

It had been years since I dreamed. When I was a child my dreams always frightened me. I would wake my father up with my screaming. He would come to my room, a grim dispenser of comfort. He would blink at me and put his hand on the side of my face and tell me it was all right. He never wore pajamas. After I started to go to school I dreaded seeing

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him naked, his white body parting the darkness of my room. So I guess I stopped dreaming.

But I dreamed of Bonivard. I dreamed he rode his spider into my room and he was naked. I dreamed of touching the white scar tissue that covered his stumps and the catheterized fold where his genitals had once been. To my horror I was not horrified at all.

Django's door was ajar. I knocked and, without waiting for a reply, entered. I'd never been in his room before; it smelled like low tide. A bowl of vegetables was desiccating on the window sill. The bed hadn't been made since we'd arrived and clothes were scattered as if Django had been undressed by a whirlwind. He sat, wearing nothing but underpants and a headset, working at a marble-topped table. White ten-gigabyte memory chips were stacked in neat rows around his computer cuff, which was connected to a borrowed flatscreen and a keyboard. He tapped fingers against the black marble as he watched code scrolling down the screen.

"Yeah, I *want* to be in that *num*ber—bring it home, *Satchmo,*" he muttered in a sing-song voice, "when those *saints* come marching *in!*"

He must have sensed he was not alone; he twisted on his chair and frowned at me. At the same moment he hit a key without looking and the screen went blank. Then he lifted the headset.

"Well?" I said, indicating the chips.

"Well." He rubbed his hand through his hair. "It thinks it's an artificial intelligence." Then he smiled as if he had just made the decision to trust me. "Don't know yet. Interesting. Hard to stretch a program designed for a mainframe when all I've got to work with is kludged junkware. I'd break into Bonivard's heavy equipment if I could. Right now all I can do is make copies."

"You're making copies? Does he know?"

"Do I care if he does?"

I grabbed some dirty white pants from the floor and tossed them at him. "I'll stay if you get dressed."

He began to pull the pants on. "Welcome to the Bernese torture chamber, circa 1652," he said, doing a bad robot imitation.

"I thought the torture chamber was in the dungeons."

"With two there's no waiting." He tilted a plastic glass on the table, sniffed at it suspiciously, and then took a tentative sip. "Refreshments?"

I was about to sit on the bed but thought better of it. "Ever hear of someone called Carl Pfneudl?"

"The Noodle? Sure: one of the greats. Juice was that he set up the SoftCell scam. Made money enough to buy Wisconsin. Came to a bad end, though."

Suddenly I didn't want to hear any more. "Then he's dead."

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"As a dinosaur. Mindkillers finally caught up with him. Made a snuff video; him the star. Flooded the operators' nets with it and called it deterrence. But you could tell they were having fun."

"Damn." I sagged onto the bed and told him what Ego had told me.

Django listened with apparent indifference but I had been around him long enough to read the signs. My guess was that WISEGUY was a lot more than "interesting." Which was why Django wasn't flashing on some poison or another—he had to be clean for tricky operations. And now if Bonivard was Pfneudl, that lent even more credibility to the idea that WISEGUY was a true AI.

"The old Noodle looked plenty dead to me." Django shook his head doubtfully. "That was one corpse they had to scoop up with a spoon and bury in a bucket."

"Video-synthesizers," I said.

"Sure. But still cheaper to do it for real—and they had reason enough. Look, maybe the pogo was lying. Trying to prove intelligence that way. It's the old Turing fallacy: fooling another intelligence for an hour means you're intelligent. Lots of really stupid programs can play these games, Eyes. There's only one test that means anything: can your AI mix it up with the two billion plus cerebrums on the planet without getting trashed? Drop that pogo into Manhattan and it'll be scrap by Thursday."

"Then who is Bonivard?"

Django yawned. "What difference does it make?"

My door was ajar so that I could hear the spider singing when he came past. "Bonivard!"

The spider nudged into my room, nearly filling it. Still I was able to squeeze by and thumb the printreader on the door, locking us in.

"Don't worry about Django." Bonivard seemed amused. "Busy, too busy."

I didn't want to look up at him and I wasn't going to ask him to stoop. I might have stood on the bed except then some part of me would be expecting my father to come in and yell. So instead I clambered to the high window and perched on a rickety wooden balcony that a sneeze might have blown down. The wind off the lake was cool. The rocks beneath me looked like broken teeth.

"Careful," said Bonivard. "Fall in and you'll glow."

"Are you Carl Pfneudl?"

He brought the spider to a dead silent stop. "Where did you hear that name?"

I told him about Ego's demonstration. What Django had said.

"Are you?" I repeated.

"If I am, the story changes, doesn't it?" He was being sarcastic but I

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wasn't sure whether he was mocking me or himself. "Juicier, as you say. Main menu. It means money. Publicity. Promotions all around. But juice is an expensive commodity." He sighed. "Make an offer."

I shook my head. "Not me. I'm not working for Infoline anymore. Probably never work again." I told him everything: about my burster, the possibility that I had given away our location, how Macmillan had cut me free. I told how I'd tried to tell him before. I don't know how much of it he knew already—maybe all. But that didn't stop me: I was on a confessing jag. I told him that Django was making copies of WISEGUY. I even told him that I had dreamed of him. It all spilled out and I let it come. I knew I was supposed to be the reporter, supposed to say nothing, squeeze the juice from him. But nothing was the way it was supposed to be.

When I was done he stared at me with an expression that was totally unreadable. His ruined arm shivered like a dead leaf in the wind. "I wanted to be Carl Pfneudl," he said. "Once. But Carl Pfneudl is dead. A public execution. Now I'm Bonivard. The prisoner of Chillon."

"You knew who I was," I said. "You brought me here. Why?"

Bonivard continued to stare, as if he could barely see me across the room. "Carl Pfneudl was an arrogant bastard. Kind of man who knew he could get anything he wanted. Like Django. If he wanted you, he would have found the way."

"Django will never get me." I leaned forward. I felt like grabbing Bonivard, shaking some sense into him. "I'm not some damn hardware you can steal, a program to operate on."

He nodded. "Maybe that was it. I was alone—too long. Saw you on telelink. You were tough. Took risks but didn't pretend you weren't afraid. You were more interesting than the punks you covered. Like Django. Fools like Carl Pfneudl. You were a whole person: nothing missing."

I took a deep breath. "Can you make love, Bonivard?"

At first he didn't react. Then the corners of his mouth turned up: a grim smile. "That's your offer?"

"You want an offer?" I spat on the floor in front of him. "If Pfneudl is dead then good, I'm glad. Now I'm going to ask once more: can you make love to me?"

"A cruel question. A reporter's question."

I said nothing.

"I don't want your damn charity." As the spider's cockpit settled to the floor, he stretched to his full pitiful length. "Look at me! I'm a monster. I know what you see."

I slid off the sill and dropped lightly to the floor. "Maybe a monster is what I want."

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I think I shocked him. I think that some part of him hoped that I would lie, tell him he wasn't hideous. But that was his problem.

I unbolted him from the spider, picked him up. I'd never carried a lover to bed. He showed me how to disengage the bionic collar; told me we'd have a couple of hours before he would need to be hooked up again.

In some ways it was like my dream. The scar tissue was white, yes. But . . .

"It's thermofiber," he explained. "Packed with sensors." He could control the shape. Make it expand and contract.

"Connected to all the right places in my brain."

I kissed his forehead.

I was repulsed. I was fascinated. It was cool to the touch.

"The answer is yes," he said.

It was dinner time. Django had made a circle of cherry tomatoes on the table of the banqueting hall.

"It's over," said Bonivard.

Django whistled as he walked to the opposite side of the table to line up his shot. He flicked his thumb and his shooter tomato dispersed the top of the circle. "All right."

Bonivard tossed a Swiss Volksbank passcard across the table, scattering the remainder of Django's game. "You're leaving. Take that if you want."

Django straightened. I wondered if Bonivard realized he was carrying heat. "So I'm leaving." He picked up the passcard. "Weren't there two of these before?"

"You made copies of WISEGUY." Bonivard held up a stack of white memory chips from the cockpit of the spider. "Thanks."

"Nice bluff." Some of the stiffness went out of Django. "Except I know my copy procedure was secure." He smiled. Getting looser. "Even if that is a copy, it's no good to you. I re-encrypted it, spiderman. Armor-plated code is my specialty. You'll need computer *years* to operate."

"Even so, you're leaving." Bonivard was as grim as a cement wall. I think I knew why their negotiations had broken down—had never stood a chance. Bonivard had the same loathing for Django that an addict gets when he looks in the mirror after his morning puke. Django never recognized that hatred; he had the sensitivity of a brick.

"What's wrong, spiderman? Mindkillers knocking at the door?"

"You're good," said Bonivard. "A pity to waste talent like yours. It was a clean escape, Django; they've completely lost you. You'll need some surgery, get yourself a new identity. But that's no problem."

"No problem?" I said. "I'm used to being me."

"Maybe I wouldn't mind losing this face." Django rubbed his chin.

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"The only reason I put up with you this long," said Bonivard, "was that I was waiting for WISEGUY."

"I'm taking my copies, spiderman."

"You are. And you're going to move those copies. A lot of them. Cheap and fast. Since they've lost your trail, the mindkillers are waiting to see where WISEGUY turns up. Try to backtrack to you. Your play is to bring it out everywhere. Get some pieces of it up on the operators' net. Overload the search programs and the mindkillers will be too busy to bother you."

Django was smiling and nodding like a kid learning from a master. "I like it. Old Django goes out covered with glory. New Django comes in covered with money."

"Probably headed for the history chips." Bonivard's sarcasm was wasted on Django. "The great humanitarian. Savior of the twenty-first century." Django's enthusiasm seemed to have wearied Bonivard. "The big prison, punk."

Django was too full of his own ideas to listen. He shot out of his chair and paced the hall. "A new ID. Hey, Eyes, what do you think of 'Dizzy.' I'd use 'the Count' but there's a real count—Liechtenstein or some such—who operates. Maybe Diz. Yeah."

"Go plug yourself, Django." I didn't like any of it; I never signed on to disappear.

"Maybe you're not as scrambled as you pretend, Frankie boy." There was open admiration in Django's voice, "Don't worry, the secret is safe. Not a word about this dump. Or the Noodle. Honor among thieves, right? No hard feelings." He had the audacity to extend his hand to Bonivard.

"No feelings at all." Bonivard recoiled from him. "But you'll probably get dead before you realize that."

Anger flashed across Django's face but it didn't stick. He shrugged and turned to me. "How about it, Eyes? The sweet smell of money or the stink of mildew?"

"Goodbye, Django." Bonivard dismissed him with a wave of his good hand.

I didn't need Bonivard's help to lose Django. I was almost mad enough to walk out on the two of them. But I didn't. Maybe it was reporter's instincts still at work even though they didn't matter. I gave Django a stare that was cold enough to freeze vodka. Even he could understand that.

He picked up the bank passcard, flicked it with his middle finger. "I told you once, Eyes. You're not as smart as you think you are." Flick. "So stay with him and rot, bitch. I don't need you." Flick. "I don't need anyone."

Which was exactly right.

Bonivard and I sat for a while after he had gone. Not looking at each

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other. The hall was very quiet. I think he was waiting for me to say something. I didn't have anything to say.

Finally the spider stretched. "Come to my rooms," said Bonivard. "Something you should see."

Bonivard had taken over the suite once reserved for the Dukes of Savoy. It had taken a battering during the riots; in Bonivard's bedroom a gaping hole in the wall had been closed with glass, affording a view of rubble and the fire-blackened curtain wall. We had to pass through an airlock into a climate-controlled room that he called his workshop. His "workshop" had more computing power than Portugal. The latest Cray filled half the space, a multiprocessor he claimed was capable of performing a trillion operations per second.

"The electronic equivalent of a human brain," said Bonivard. A transformation came over him as he admired his hardware: a bit of a discarded self showed though. I realized that this was the one place in the castle where the mad prisoner of Chillon was not in complete control. "Runs the spider, although that's like using a fusion plant to run a toaster. There hasn't ever been software that could take advantage of this computer's power."

"Until WISEGUY," I said.

For a minute I thought he hadn't heard me. "Sliced through Django's encryption in a week." The spider crouched until the cockpit was almost touching the floor. "WISEGUY is a bundle of different programs that share information. Vision system, planner, parser. Not only can it address massive amounts of memory but it understands what it remembers. Learns from experience." The spider stopped singing and its legs locked in place. "What's amazing is that when you port it from one hardware configuration to another, it analyzes the capabilities of the new system and begins using them without any human intervention." The flatscreen in the cockpit went black: he had powered the spider down. "But it's not true AI."

"Not?"

He shook his head. "Heuristics are nowhere near good enough. It's as close as anyone has ever come but still needs a man in the loop to do anything really worth doing. Bring me the helmet."

The helmet was a huge bubble of yellow plastic which would completely cover Bonivard's head. At its base there were cutouts for his shoulders. I peeked inside and saw a pincushion of brain taps. "Careful," said Bonivard. It was attached by an umbilical to a panel built into the Cray.

I helped him settle the thing on his head and fasten the straps which wrapped under his armpits. I heard a muffled "Thanks." Then nothing for a few minutes.

The airlock whooshed; I turned. If I were the swooning type, that would

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have been the time for it. Yellowbaby smiled and held out his arms to me.

I took two joyous strides to him, a tentative step, and then stopped. It wasn't really the Babe. The newcomer looked like him, all right, enough to be a younger brother or a first cousin—the fact is that I didn't know what Yellowbaby really looked like anyway. The Babe had been to the face cutters so many times that he had a permanent reservation in the OR. He had been a chameleon, chasing the latest style of handsomeness the way some people chase Paris fashion. The newcomer had the same lemon blond hair cut in the same conservatively wide hawk, those Caribbean-blue eyes, the cheekbones of a baronet and the color of *café au lait*. But the neck was too short, the torso too long. It wasn't Yellowbaby.

The newcomer let his arms fall to his sides. The smile stayed. "Hello, Wynne. I've been waiting a long time to meet you."

"Who are you?"

"Who do you want me to be?" He sauntered across the room to Bonivard, unfastened the helmet, lifted it off, replaced it on its rack next to the Cray. And went stiff as a four-hour-old corpse.

Bonivard blinked in the light. "What do you think?"

"A surrogate? Some fancy kind of remote."

"Fancy, yes. It can taste, smell. When its sensors touch you, I feel it."

Telelink had been making noise about the coming of surrogate technology for a long time. Problem was that running the damn things was the hardest work anyone had ever done. Someone claimed it was like trying to play chess in your head while wrestling an alligator. After ten minutes on the apparatus they had to mop most mortals up off the floor.

"How long can you keep it going?" I said.

"Hours. WISEGUY does all the work. All I do is think. And it doesn't matter if it's this model or the spider or a robot tank or a killer satellite."

"The army of the future." I nodded. "That's why the feds went berserk."

"Django is going to be a hero. Everywhere but in the States. The world gets WISEGUY, the balance of power stays the same. And if there's anyone with any brains left in Washington, they should be secretly pleased. WISEGUY is the kind of weapon you either use or lose. Better to let the imams have it than invade Teheran and risk a nuclear exchange." He powered the spider up again. "And think of the applications for space and deep sea exploration. Hazardous work environments."

"Think of the handicapped," I said bitterly. "I lose my freedom. You get yours. You knew the story would be too hot for Infoline to handle." I hit myself with the heel of my hand; I'd been so dumb. "You paid Yellowbaby to bring me to you. Like some slimy white slaver."

"He didn't know how important WISEGUY was, that Wynne Cage would be stuck here. He didn't have the specs; I did." At least Bonivard

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didn't try to gloss over his guilt. It wasn't much but it was something. "You want to leave," he continued, not daring to look me in the face, "I suppose I don't blame you. I've made the arrangements. And the other bank passcard is already signed over to your new identity."

"Plug the new ID!" I walked up to the surrogate, felt its hand. The skin was warm to the touch, just moist enough to pass. "What do you need this doll for anyway?"

"The mindkillers let me come here to die. No explanations. They didn't confiscate my bank accounts. Didn't stop me from seeing all the doctors I wanted. Just let me go. Probably part of the torture. Keep me wondering. I decided not to play it their way, to hurt them even if it landed me back in their lab. But a random hit, no. I wanted to hurt them and help myself at the same time. I did some operating; found out about WISEGUY."

"Maybe they wanted you to. And IBM let Django steal it."

"That occurred to me." Bonivard ran his fingers through his thinning brown hair. "Using me and some punk operators to leak a breakthrough no one really wanted in the first place. War is bad business." He sighed. "I don't care anymore. I have WISEGUY. As you say, my freedom. I wanted the surrogate so that I could be with people again. Free from the stares, the pity. The freedom to be normal."

"But you're not normal, Bonivard. You are who you are because you're damaged and you suffer. Living with it is what makes you strong."

For a moment he seemed stung, as if I had no right to remind him of his deformities. Then the anger faded into sadness. "Maybe you're right," he said. "Maybe this body is part of the prison. But I can't go on alone anymore. Or I *will* go mad." He looked at me then, half a man strapped to a robot spider. "I don't want you to go, Wynne. I love you."

I didn't know what to say to him. He was a genius operator, obscenely rich. The deformities no longer bothered me; in fact, they were part of the attraction. But he had no idea who I was. Making the surrogate look like the Babe had been a sick joke. And he had been so pathetically proud of his thermofiber prosthesis when we'd made love, as if a magic plug was all it took to make an allnighter out of a man with no legs. He didn't know about my own psychological deformities, less obvious perhaps but no less crippling. How could I stay with him when I'd never stayed anywhere before? The problem was that he was not only in love, he was in need.

"The doctors are quite sure, Wynne. Two years at most—"

"Bonivard!"

"—at most. By that time the leaking of WISEGUY will be old news. It'll be safe to be Wynne Cage again, anyone you want to be. And of course this will be yours."

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"Stop it, Bonivard. Don't say anything." I could tell he had more to say; much too much more. But when he kept quiet, I was mollified. "I thought you didn't want charity."

He laughed. "I lied." At himself.

Then I had to get away; I pushed through the airlock back into the bedroom. I wanted to keep going; I could feel my nerves tingling with the impulse to run. But it had been a long time since anyone had told me they loved me and meant it. He was a smart man; maybe he could learn what I needed. Maybe we could both learn. Not Swiss bank accounts or features on the main menu.

I had been on the run for too long, slid between the sheets with too many punks like the Babe without feeling a damn thing. At least Bonivard made me feel *something*. Maybe it was love. Maybe. He was going to let me go, suffer so I would be happy. I hadn't known I was worth that. I leaned against the wall, felt the cold stone. Something Django—of all people—had said stuck with me. Don't think, just do it. Improvise.

He came out of the workshop riding the spider. I think he was surprised to see me. "My very chains and I grew friends," he said, "so much a long communion tends to make us what we are—"

"Shut up, Bonivard." Standing absolutely still, I opened my arms to him. To the prison of Chillon. "Would you shut the hell up?" ●

PAST LIGHT

always escapes us, is red-shifted.
At the distance of the sun you'd see
an Earth only seven minutes dead.
The time it took Oswald to fire and flee,
took Kennedy's life to begin to ebb
and speed off with those instant's photons.
History surrounds us in pearl-layered webs
of past light, of moments and millennia gone.
It moves by its own laws of decay.
Every August Hiroshima morning is stained
with 1945. Images of, say, John Coltrane fray.
Our pasts, like his chordings, are strained
into tenuous-linked particles. And worse,
they too are forever expanding with the universe.

—Robert Frazier

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ON BOOKS

by Baird Searles

Venus of Dreams
By Pamela Sargent
Bantam, $3.95 (paper)

Can there be any such thing as an authentic hero(ine) in the future? Not the hero-of-a-story kind, but the erect-a-statue kind? Our culture has certainly had a dearth of heroes since mid-century; martyrs, yes, but real "(s)he gave his/her life for the good of all" types seem to have been in short supply. One guess as to why is that there is so much information available that no one can be a hero to his own time; TV et al. has made us all cynically sure that everyone has feet of clay. (In retrospect, we know that most heroes, from Joan of Arc to Gordon of Khartoum, had muddy feet to a greater or lesser degree, but they were nonetheless deified in their own times.)

Pamela Sargent, however, believes enough in heroines to give us the biography of one in her new novel, *Venus of Dreams*. Iris Liangharad is the first heroine of terraformed Venus, and we follow her life from childhood and with it, much of the process of the rebuilding of the inhospitable planet.

Iris is an unlikely heroine, as all the best ones are. She was born in the Plains section of what used to be the U.S., near a village called Lincoln for a city that used to stand there. Most of the Earth is still recovering from the wars over resources that had occurred about half a millenium earlier. The best and the brightest of mankind had withdrawn from the planet to live in artificial habitats—constructs and hollowed-out asteroids—in space; they are the "Habbers" who have formed a totally new culture away from Earth.

What remains of humanity at home fall (almost through a simple power void) under the New Islamic States and their Mukhtars, who rule the various Nomarchies into which Earth is divided. The rule is fairly loose, but a vaguely communistic worldwide culture grows up, aided by the high-tech communication and transport developed over the years. The major one of these is the mindlink which links human minds to the artificial intelligences on which the government is based (and which some think *are* the government). Most of Earth's population consists of what might be called technopeasants, who use the sophisticated equipment available, but who are for the most part illiterate and provincial. They use the mindlinks mostly for

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superficial pleasure, "trips" to other places that they wouldn't dream of visiting physically.

Iris is different, however, and uses her link to learn voraciously, which upsets her village and her mother particularly. (The Plains Communes are a matriarchal society; the women stay at home and run things, the men are itinerant, going wherever labor is needed.) More than anything she wants to become part of "the Project," in which Earth is spending much of its precious resources to make Venus livable, another planetary home for humankind as opposed to the artificial, closed environments of the Habbers.

Sargent gives us Iris's life in detail, as she beats her way up through the semirigid society of the Nomarchies, gets an education, meets and marries Chen, a worker from the other side of the world, and finally becomes part of the Venus project. Along the way we learn quite a bit about the mechanics of reforming a planet. There are, of course, social stresses as well as the enormous physical ones involved, and Iris and Chen and their son Benzi all become involved one way or another with the various factions: the workers and would-be colonists (the "Cytherians") of the Project; the homebound Mukhtars determined to keep control of the Project for Earth; and the mysterious Habbers, who have their own stake in the game.

Sargent has painted an enormous and complex canvas here. Like all of her writing, it is intelligent and convincing; the complicated future society is worked out in amazing detail. The many characters are certainly of a different ilk from the classic superficialities still to be found in much SF these days. Nevertheless, I'm not sure they can be called three-dimensional; Iris, Chen, and the others are all fairly single-minded, and, I'm afraid, in the long run rather tedious. Part of it is that there is not a speck of humor among them, or in the book as a whole. Nor is there much in the way of dramatic tension or surprises. There is *some* action, certainly; at one point Iris is "shipwrecked" on the unlivable surface of Venus, and there is the final revolt of the Cytherians against the home government, with a long siege of the Project's floating "islands" which culminates in Iris's final act of heroism. But the enormous length of the novel (well over 500 pages) calls for a heroine with a bit more zip than Iris Liangharad.

Threshold
By David Palmer
Bantam, $2.95 (paper)

It's good to know that David Palmer can write straightforward English. His first novel, the entertaining *Emergence,* was written for the most part in a sort of adolescent shorthand. The second, *Threshold,* is composed of sentences with subjects *and* verbs.

His hero is Peter Cory; speaking of heroes, here's a hero. When a

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charming female with a talking tomcat appears out of nowhere on Cory's private island, and says, "Unless you join us . . . *the galaxy is doomed* . . . " one has the suspicion that one is in for a grand romp, with all the galaxy-saving cliches of old-fashioned SF tossed off with a touch of humor.

It seems that Meg is from a distant star system, the planet Isis to be exact; her people, the Isi, are masters of manipulating something called *mMj'q* which provides the *pwW'r* which is their equivalent of science. Meg is a *wWyh'j* and Memphus, the talking cat, is her *fmMl'hr* (try pronouncing those words phonetically and you'll get the idea). However, the Isi are totally untechnological and there's something the size of the Andromeda Galaxy heading our way which eats other galaxies for breakfast (it's antimatter, possibly sentient, and called *R'gGnrok*, wouldn't you know).

The Isi's "compudictors" have announced that Cory is the only man in the galaxy who stands a chance of defeating this thing (a 49% chance, to be exact). This isn't as unlikely as it sounds, since the Isi have been manipulating genealogical lines on Earth for thousands of years, and he is the end result. This is why he is "the youngest self-made multibillionaire in history at eighteen; at twenty-six, world class race driver, pilot, and master mariner; overall male Olympic champion; black-belt-holder in three different forms of unarmed combat; undersea explorer; mapper of some of the most remote territories on Earth" and so on *ad infinitum* (& *nauseum?*).

And Cory and Meg combine talents, and are off, to face a zillion deadly perils. These include everything from collecting a *mMj'q wWn'dt* from the bottom of a lake in Red Chinese occupied Tibet to crashlanding on Meg's huge homeworld of Isis with a 330,000-mile trek to reach her people. And to add to the suspense, we're let in on some interdepartmental memos from Meg's bosses that lead us to believe that Things Are Not What They Seem on Isis.

It's all very jaunty, and there's a lot of snappy Heinlein-type dialogue from everybody concerned, but unfortunately, the joke wears a bit thin. Cory's supermanship gets pretty predictable, and his long-winded explanations of just how he manages to accomplish all these marvels weigh down a plot that should be so speedy that the reader doesn't have a chance to think.

Last Letters From Hav
By Jan Morris
Random House, $14.95

Middle-Earth and Barsoom are really just colonies of Lilliput, when you think about it. The created world had to take the place of the created country when the Earth got too well-known, but up until 1900 there was still space there to tuck in a fictional land, as did Jonathan Swift several times over in

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Gulliver's Travels. In this century it takes some finagling to make a country, especially one that would interact with the modern world. Austin Tappan Wright did it brilliantly with his *Islandia*, which is what makes it one of the greatest (and most unclassifiable) works of speculative fiction.

Since then, there have been few if any attempts to create a new corner of the global village. Now there is one, and it's a delight. Jan Morris is generally considered England's finest travel writer, and her *Last Letters From Hav* gives us another memorable created locale in the city/state of Hav.

Last Letters From Hav differs from *Islandia* in several ways. For one thing, it's not a novel. It's an expertly written travel book, harking back to the golden age of travel writing in the thirties, when adventurous spirits such as Richard Halliburton would go off to faraway places with strange sounding names and write of their experiences. For another, the country of Islandia had been closed to foreigners for its history (the novel concerns its opening up to the rest of the world); Hav has been subject to invasions and conquest by any number of peoples—Saracens, Russians, British—so its history is entwined with many others.

Where in the world *is* Hav? It's on the Anatolian peninsula (Turkish Asia) just down the coast from the site of Troy (Achilles is supposed to have made camp there); however, it is not Turkish, but has its own unique culture. Morris, in the course of describing the physical and social aspects of Hav, traces its history, and its many mentions by writers as diverse as Pliny, St. Paul, and Tolstoy (he hated the place). The original inhabitants speak a Celtic-derived language, and now live in a cave settlement in the escarpment which walls off the small Hav peninsula from the rest of the world.

Through Morris's eyes, Hav takes on a detailed reality, and it's all done with an absolutely straight face (well, maybe there's just the hint of a Mona Lisa smile behind some of the more outrageous incidents in Hav's history). Why *last* letters from Hav? Morris leaves the place as a tragic fate overtakes it—and the perhaps-extinct wild bears of Hav wouldn't drag out of me what it is, but it says a lot about the modern world.

The Planets
Edited by Bryon Preiss
Bantam, $24.95

The Planets, edited by Bryon Preiss, is like a very good beef stew, visually enhanced with colorful carrots and green peas, but with some satisfyingly substantial meat and potatoes therein also. Mr. Preiss and the myriad contributors, who include Arthur C. Clarke, Ray Bradbury, Isaac Asimov, Harry Harrison, Frank Herbert, and Robert Silverberg among others, may not appreciate this homely and unesthetic comparison, but it is

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meant kindly. A good stew is not to be sneezed at.

The Planets is a bit of a mishmosh, as a well-done stew should be. It's a largish volume, and each section deals with one of the planets of the Solar System (including the potential ex-planet Earth). *In* each section, there is a short, readable essay on the planet, its history in human awareness and what we know of it physically as of now. Then there is a piece of short fiction set on or about that particular world (Mars, for instance, has a new Martian chronicle from Bradbury). Each section has several illustrations, almost all in color: astronomical art, NASA photographs, and paintings by various artists known in the field, including Ralph McQuarrie, Wayne Barlowe, and artist/astronaut Alan Bean.

It's a handsome book, all in all; and if you can't tell Uranus from Neptune, educational as well (which I admit is something you can't say about a beef stew).

The Last Days of the Edge of the World

By Brian Stableford

Ace, $2.95 (paper)

It's a brave man or woman who will try a light fantasy these days. Judging by the amount of them churning out of the publishers, there are a lot of brave people, but that's just the problem. The repetitiveness is enough to daunt any author, and one suspects that if it *doesn't* fit the mold, editors (or more likely the sales departments, who have a great say in what gets published—this is called the real world) look at it dubiously. You can bet that something like *Titus Groan* would not be snapped up by a publisher nowadays.

Nevertheless, a few semi-originals get themselves published. Brian Stableford's *The Last Days of the Edge of the World* (nice title, if unwieldly) is one such. It was published in hard cover back in 1978, and has taken all this time to get to paperback. *Too* original, one wonders?

For one thing, for a relatively brief novel it has a lot in it. Six quests, for instance. It seems that Helen, daughter of the last magician in the ruined lands of the World's Edge, and Damian, Prince of Caramorn, the *un*magical land nearest the magic countries (or what's left of them), do *not* want to marry each other, despite the strong desires of their respective fathers. (Helen's father, the magician, wants to get her out of the magic countries before they sink into oblivion; King Rufus Malagig IV wants to get some magic back into Caramorn in hopes that it will save the kingdom, which has been going downhill since magic was banished two hundred years ago, and is now utterly bankrupt.)

So Helen, going on an ancient precedent, suggests she set three questions for Damian to answer, on the understanding that he, of course, can do the same. Suddenly, her magic mirror (a very uppity

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type) delivers the image of an ancient personage who gives her a sort of spell *cum* prophecy that consists of six esoteric questions. At the same time, Ewan, a young researcher who is cataloguing the library at Caramorn (to see how much it will bring on the rare book market), runs across the same set of queries.

They both decide to use them, since they can only be answered by visiting various places of ill repute in the ruined lands of magic. Damian cheats, sending Ewan to do the dirty work (he *is* a researcher, after all).

Helen decides that she's not going to be bested by some nitwitted Prince, so she sets out to find *her* answers. Both sides figure out soon enough what the other side is up to, but Helen and Ewan realize that they are caught up in some powerful ancient spell from before the wars that brought ruin to the Edge of the World.

The six mini-quests are exciting and have some unusual ingredients—a lamia, for instance, and a water monster that prefers male virgins; they all end rather unexpectedly.

The people are engaging and often funny (I liked the ghostly poet from the offices of the Supernatural Bureaucracy ["Who do you think keeps all the curses that were ever laid on file?"] who helps out the couple). And again, for a short novel, there's a nice sense of a magic world and its history that transcend the events of the story.

The Long Tomorrow
By Leigh Brackett
Del Rey, $2.95 (paper)

"You may think you are tired of prophecies of the decay of civilization after a destructive A-war, but let me assure you that Leigh Brackett has taken this subject and made it sparkling fresh by the warmth and perception of her writing."

That's a stolen review we're opening with here; it's by one H.H. Holmes and it's from the old New York *Herald-Tribune* of sometime in the mid-1950s. I stole it because it's so apropos for the mid-eighties, not just in what it says about the book, but in what it says about the times. Like the paranoid fifties, we are inundated with after-the-bomb horror stories; this cycle has become equally tiresome, and Brackett's *The Long Tomorrow* is just as refreshing now as it was thirty years ago when it was first published.

Leigh Brackett, of course, was the Golden Age's "Queen of Space Opera"; she also had a successful career as a screen writer (little things such as *The Big Sleep*) and if one had nothing else to thank George Lucas for, one would be eternally grateful that he brought the two aspects together in *The Empire Strikes Back* (just fancy having a science fiction writer write a science fiction movie—a really bizarre idea for Hollywood).

However, she has one strikingly atypical novel, and it's still im-

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pressive. For its time, *The Long Tomorrow* was a daring experiment in writing adult SF.

It takes place several generations after the cities of the world have been destroyed by nuclear war, but Brackett had the courage to eschew a tale of anarchy or mutant monster thingies. The 30th Amendment to the Constitution now reads: "No city, no town, no community of more than one thousand people or two hundred buildings to the square mile shall be built or permitted to exist anywhere in the United States of America."

The predominant culture is modeled on that of the Mennonites (akin to the Amish) who were the only people self-sufficient enough to survive. The most advanced technical apparatus allowed is the steam engine, and that is confined to the paddle-wheelers on the rivers. The population is ultra-conservative, living in terror that "the devil's fire" will return again. The story is that of a boy with a yearning for the old times, and his years-long search for the fabled community where advanced technology still exists.

All these ideas have been cloned to the point of cliche, but at the time it was a revolutionary handling of the post-holocaust theme. And it still transcends the bromidic because Brackett's major theme is the growth and coming of age of her hero, torn as he is by the violent conflict between his heritage and his desires. It is not a simple, black-and-white choice, and Brackett gives it myriad overtones, as she does her characters. Her milieu may have been copied to death, but her novel hasn't. As with any True Original, one feels that one is coming across its ideas for the first time.

Shoptalk . . . About a year ago, we mentioned John Masefield's delightful *The Box of Delights*, and grumped about the fact that the even better book to which it's a sequel was not available. Well, finally, *The Midnight Folk*, Masefield's complex and quirky juvenile fantasy, has been reprinted. Like all the great English fantasies, it transcends its categorization. (Dell Yearling, $4.95, paper) . . . The granddaddy of all small specialty publishers in the genre, Arkham House, founded by August Derleth to preserve and promote the works of H.P. Lovecraft (as well as many other greats over the years), continues its mission with a new ongoing project. (You don't often find that length of commitment these days.) They are republishing three great Lovecraft collections, initially put together by Derleth, in definitive editions, based on S.T. Joshi's collation of extant manuscript materials. Last year *The Dunwich Horror and Others* was republished; just out is *At the Mountains of Madness* (Arkham House, $16.95). This may be the prize collection of the lot, containing as it does three of HPL's longer works: the title novel, a

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humdinger about awfuls in Antarctica which curiously prefigures John W. Campbell's "Who Goes There"; "The Case of Charles Dexter Ward," the archetypal Lovecraft tale of the contemporary innocent who digs too deeply into an ancestor's demonic doings; and his atypical "The Dream-Quest of Unknown Kadath," which demonstrates the great influence of Dunsany. Coming soon in this series will be *Dagon*.

No reviewer could resist mentioning a new academic work just out. It's the *Science Fiction and Fantasy Book Review Index, 1980-1984* edited by H.W. Hall. It contains more than 13,800 review citations appearing in over 70 SF, fantasy, and general periodicals. (Gale Research Co., $160)

Recent publications from those associated with this magazine include: *Comets: Isaac Asimov's Wonderful Worlds of Science Fiction #4* edited by Isaac Asimov, Martin H. Greenberg, and Charles G. Waugh, Signet, $3.95 (paper).

Books to be considered for review in this column should be submitted to Baird Searles, c/o The Science Fiction Shop, 56 8th Ave., New York, N.Y. 10014. ●

SUMMER VACATION

Bluer than your California eyes,
the local sky wraps us in keening silence.

Between radio crackles,
we constantly imagine whispered chants,
harmonies from warmer times;
they brim into nothingness like surf on this endless
beach.

Touching helmets, we sing:
"Ba ba ba, ba ba Barsoom . . ."

We drink Coke at the ruins, and
all the way home our dreams
sift by in warm shades of rust.

—Alex M. Jeffers

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SF CONVENTIONAL CALENDAR

by Erwin S. Strauss

This used to be a slow time, due to school exams, but no more. Make plans now for social weekends with your favorite SF authors, editors, artists and fellow fans. For a later, longer list, an explanation of cons, and a sample of SF folksongs, send me an SASE (addressed, stamped #10 (long) envelope) at 4271 Duke St. #D-10, Alexandria VA 22304. (703) 823-3117 is the hot line. If a machine answers, leave your area code & number. I'll call back on my nickel. Send an SASE when writing cons. Early evening is often a good time to call cons. Look for me at cons behind the iridescent "Filthy Pierre" badge, with a musical keyboard.

MAY, 1986

3-6—**TexarKon.** For info, write: **Rt. 4, Box 708-X, Texarkana AR 75502.** Or phone: **(501) 645-2459** (10 am to 10 pm only, not collect). *Con will be held in:* Texarkana AR *(if city omitted, same as in address).* Guests will include: artist Kelly & P. Freas, G. R. (Dorsai) Dickson, Robert L. Asprin.

2-4—**GalaCon.** Holiday Inn Downtown, Norfolk VA. Joe Haldeman, G. L. Whitney, C. Doran, A. Rowe.

16-18—**MisCon, Box 9363, Missoula MT 59807.** L. Niven, artist S. Gallacci, T. Hickman, M. Kenin.

16-18—**KeyCon, Box 3178, Winnipeg MB R3C 4E6.** Anne McCaffrey, artist E. McKee, fan B. Friedman.

16-18—**MarCon, Box 14078, Columbus OH 43214.** R. Zelazny, A. J. & J. Offutt, K. & P. Freas, M. Porath, J. Gilpatrick, B. Maraschiello, C. Flynt, B. Sutton. Masquerade, twin 24-hour video room.

16-18—**ConQuest, Box 36212, Kansas City MO 64111.** T. Powers, Ed Bryant, A. Chancellor. Costumes.

23-25—**Kubla Khan, c/o Moore, 647 Devon Dr., Nashville TN 37220.** Tim Zahn, V. Poyser, A. Offutt.

23-25—**ConJuration, Box 690064, Tulsa OK 74169.** Stasheff, Goulart, Berdak, G. Cook, R. Jones.

23-26—***CostumeCon*, 13657 Rayen, Arleta CA 91331.** Pasadena CA. SF/fantasy costumers' annual meet.

23-25—**VCon, Box 48478, Bentall Station, Vancouver BC V7X 1A2.** The 1986 Canadian national con.

24-26—**AmigoCon, c/o Cagle, 3400 Polk, El Paso TX 79930.** P. McKillip, R. Vardeman. Masquerade.

29-June 1—**LepreCon, Box 16815, Phoenix AZ 85011. (602) 968-5749.** Don & E. Wollheim, Kim Poor.

JUNE, 1986

6-8—**HatCon, Box 855, Danbury CT 06810. (203) 743-1872 & 775-4475.** Oriented to present & would-be SF pros, especially artists. Featuring Berkeley/Ace this year. S. Allison, G. Buchanan, S. Stone.

6-8—**SoonerCon, Box 1701, Bethany OK 73008.** Gene (New Sun) Wolfe, Tom Disch, artist Ellisa Schob.

6-8—**X-Con, Box 7, Milwaukee WI 53201.** Steven Brust. Back again for another year at Olympia Spa.

AUGUST, 1986

28-Sept. 1—**ConFederation, 3277 Roswell Rd. #1986, Atlanta GA 30305.** Bradbury, fan/editor Terry Carr, Bob (Slow Glass) Shaw. The WorldCon for 1986. Join early for less.

AUGUST, 1987

27-Sep. 2—**ConSpiracy, 23 Kensington Ct., Hempstead NY 11550.** Brighton, England. WorldCon '87.

SEPTEMBER, 1987

5-8—**CactusCon, Box 27201, Tempe AZ 85282.** Phoenix AZ. NASFiC 1987, held since WorldCon's abroad.

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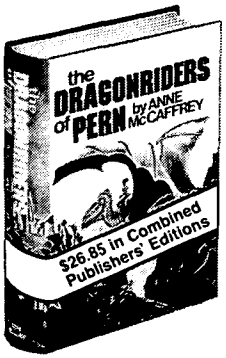

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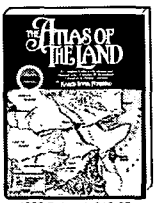

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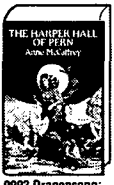

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